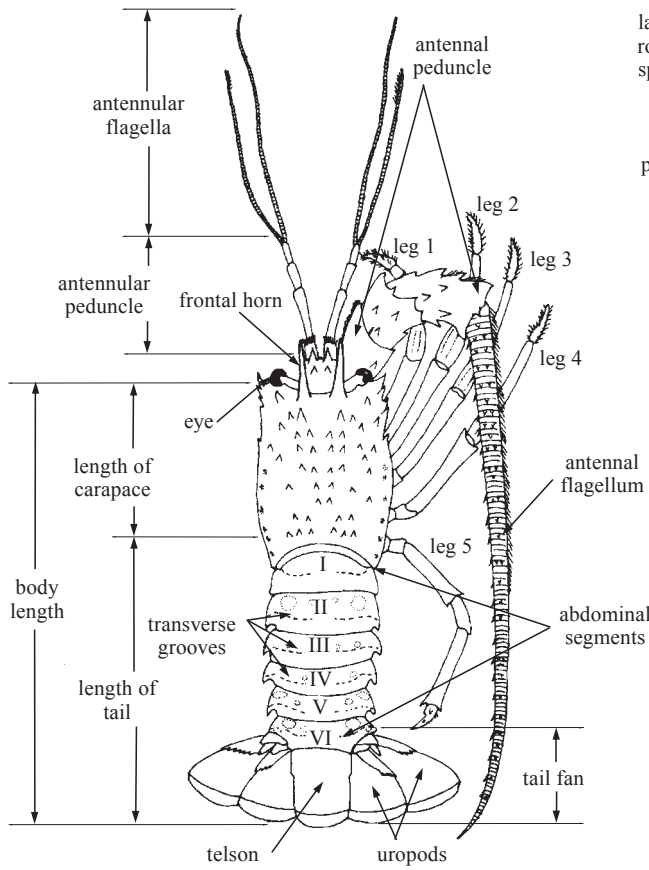


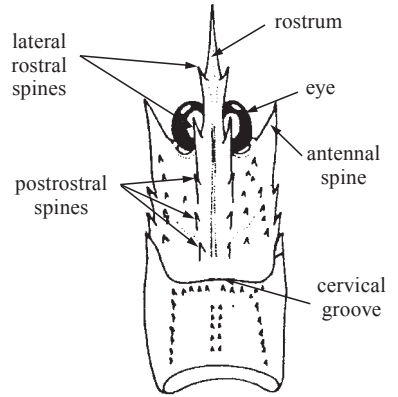
LOBSTERS

by M. Tavares, Universidade Santa Úrsula, Brazil

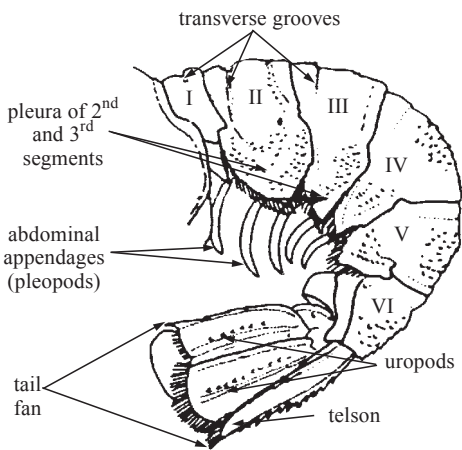
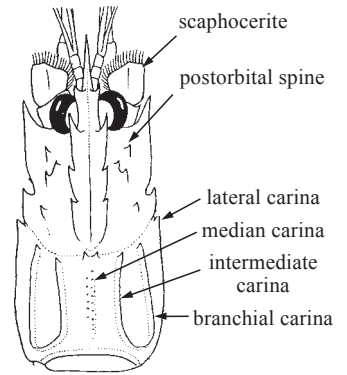
TECHNICAL TERMS AND MEASUREMENTS



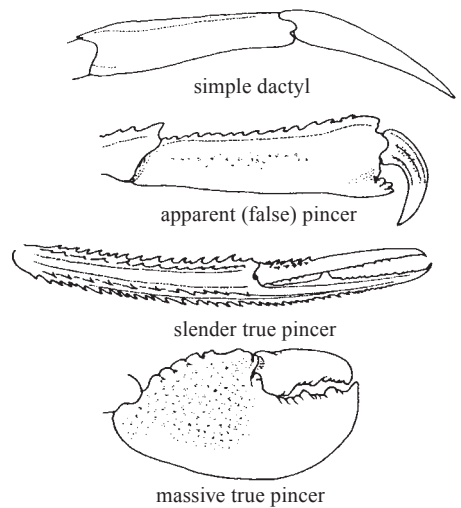
general body shape (dorsal view)



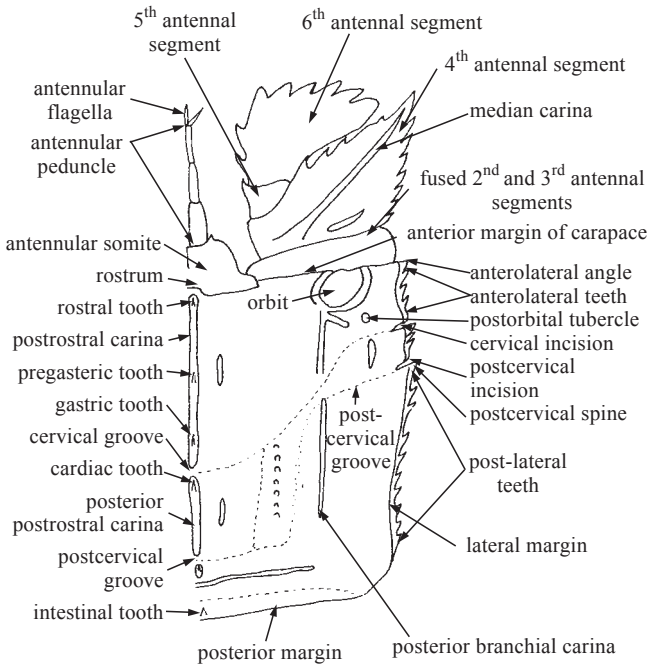
carapace (dorsal view)



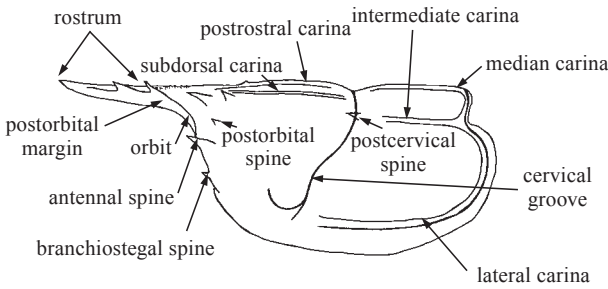
abdomen (lateral view)



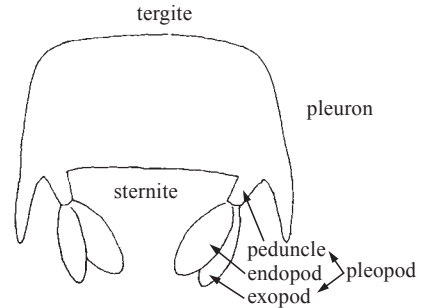
types of terminal segments in first pair of legs



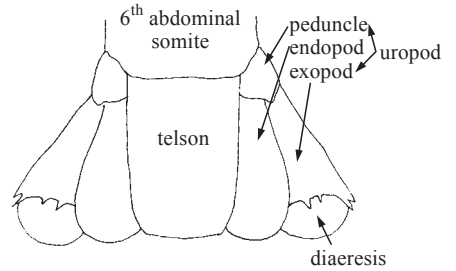
dorsal view of right half of carapace



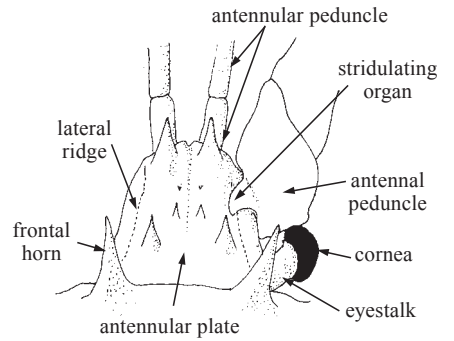
lateral view of carapace



abdomen (cross-section)



tail (dorsal)



dorsal view of head

GENERAL REMARKS

The lobsters include a variety of crustaceans ranging in size from a few centimetres to over 1 m. They are more or less elongate animals with cylindrical or flattened bodies and a prominent tail or abdomen consisting of 6 movable segments and a terminal fan, which is usually about as long as the rigid and often spiny or tuberculate head or carapace. The eyes are stalked and usually movable in the sockets of the carapace, but reduced or even absent in some families (i.e., the deepsea Thaumastocheilidae). The most conspicuous of the appendages of the anterior part of the body, under the carapace, are a pair of usually small, slender antennules, a pair of more robust antennae (long and cylindrical in most families, scale-like in the slipper lobsters or Scyllaridae) and 5 pairs of legs (pereopods or thoracic legs). The first pair of legs is enlarged in certain families (Nephropidae, Synaxidae) or in certain species of others (*Justitia* of Palinuridae); the legs may all end in a simple curved dactyl (i.e., Palinuridae, Synaxidae, Scyllaridae) or some of them may terminate in true pincers or chelae (i.e. the first 3 pairs in Nephropidae, 4 or 5 pairs in Polychelidae). The abdominal appendages are short and biramous reduced abdominal legs or pleopods.

In the Western Central Atlantic, lobsters are represented by 6 families and 34 species, of which only a few can be considered to be of interest to fisheries at the present time. Apart from the common Caribbean spiny lobster, *Panulirus argus*, no lobster species are caught at present in large quantities within Area 31; the American lobster (*Homarus americanus*), which is the most important commercial lobster species on the Atlantic coast of North America, is mainly fished to the north of Area 31. From 1984 to 1998 the lobster capture production (*Panulirus* only, almost entirely *Panulirus argus*) reported from Area 31 totaled 330 187 t (Anguilla: 1 556 t; Antigua: 1 597 t; Bahamas: 179 207 t; Belize: 8 752 t; Bermuda: 265 t; Haiti: 240 t; Honduras: 27 721 t; Mexico: 1 424 t; Nicaragua: 488 t; USA: 38 120 t; and Venezuela: 1 179 t).

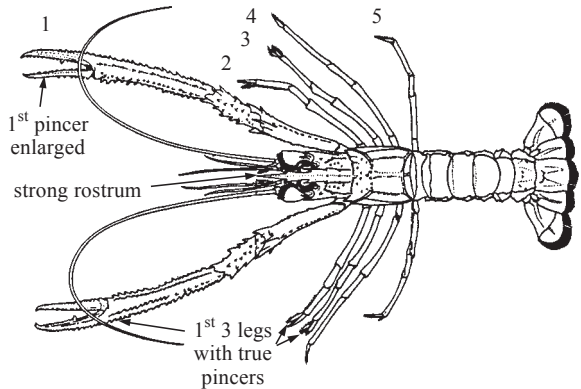
GUIDE TO THE FAMILIES OCCURRING IN THE AREA

NEPHROPIDAE

p. 299

True lobsters and lobsterettes

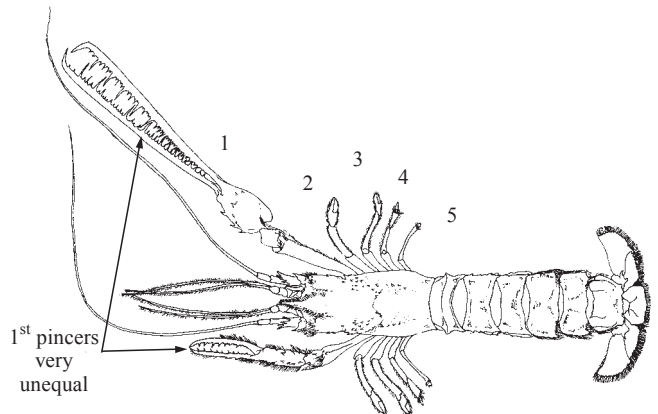
Fourteen species in the area. Body tubular; carapace with well developed rostrum; first 3 pairs of legs with pincers, first pair much larger than others; antennae cylindrical, longer than body.



THAUMASTOCHELIDAE

Pincer lobsters

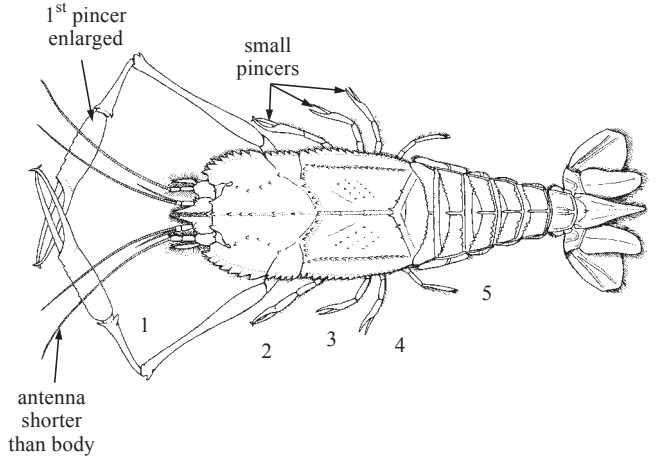
At least 1 species in the area, on the continental slope between 640 and 1 050 m. Blind (eyeless), soft-bodied deep sea lobsters; carapace with a rostrum; first 3 pairs of legs with pincers, first pair enlarged and unequal; antennae cylindrical, longer than body; antennal scale with spines. No species of interest to fisheries in Area 31.



POLYCHELIDAE

Blind lobsters

At least 2 species in the area, at depths between 100 and 2 900 m. Eyes small and lacking pigment; soft-bodied deep sea lobsters; carapace without a rostrum; telson of tail fan pointed; first 4 or all legs with pincers, first pair enlarged; antennae cylindrical, shorter than body. No species of interest to fisheries in Fishing Area 31.

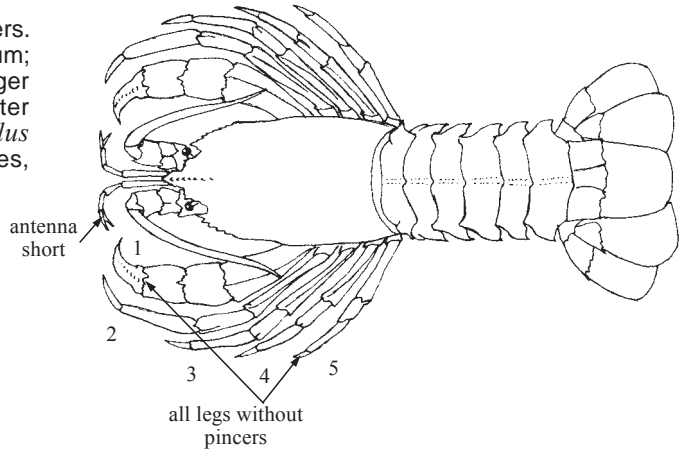


SYNAXIDAE

p. 311

Furry lobsters

One species in the area, in shallow waters. Body tubular; carapace with a small rostrum; legs without pincers, first pair much larger than others; antennae cylindrical, shorter than body. A single species, *Palinurellus gundlachi*, body without enlarged spines, hairy, and bright orange.

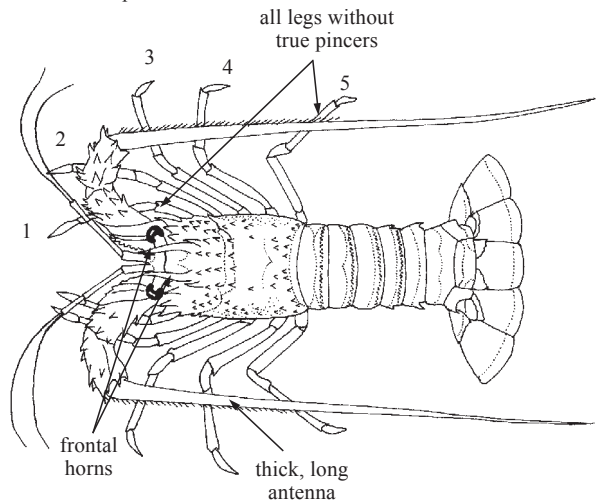


PALINURIDAE

p. 312

Spiny lobsters (langoustes)

Six species in the area. Body tubular; carapace without a rostrum; legs without true pincers; first pair not enlarged except in *Justitia*; antennae enlarged, cylindrical, longer than body.

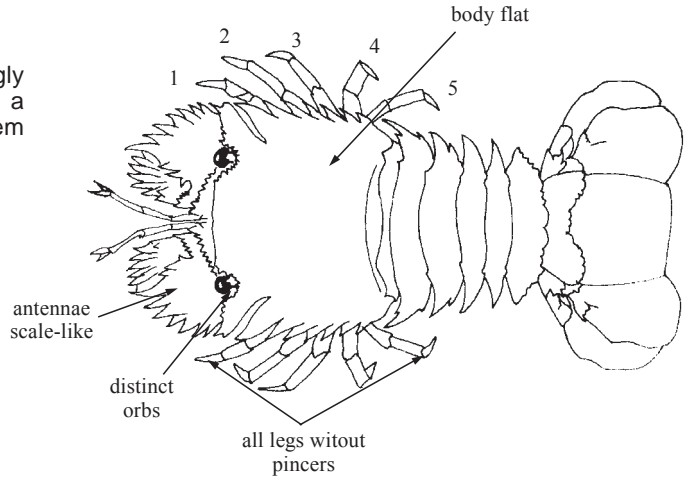


SCYLLARIDAE

p. 320

Slipper lobsters

Thirteen species in the area. Body strongly flattened dorsoventrally; carapace without a rostrum; legs without pincers, none of them enlarged; antennae scale-like.



KEY TO THE FAMILIES OCCURRING IN THE AREA

(adapted from Holthuis, 1991)

- 1a. First 3 pairs of pereopods with true chelae, the first pair the largest and most robust. → 2
- 1b. Third pereopod never with a true chela, in most groups chelae also absent from first and second pereopods → 4

- 2a. Fourth pereopod, and usually also the fifth, without true chelae; carapace cylindrical, not flattened → 3
- 2b. All pereopods, or at least the first 4, with true chelae; carapace flattened; deep sea species **Polychelidae**

- 3a. Eyes entirely absent, or strongly reduced, without pigment; telson unarmed; chelipeds very unequal, the larger with fingers more than four times as long as palm; cutting edges of the fingers of the larger cheliped with many slender spines; fifth pereopod (at least in the female) with a chela; abdominal pleura short, quadrangular, lateral margin broad, truncate, not ending in a point; scaphocerite with several very large teeth on the inner margin **Thaumastochelidae**
- 3b. Eyes well developed or reduced, always present as movable appendages; telson with lateral and/or postlateral spines; chelipeds equal or unequal, but fingers always considerably less than twice as long as palm; teeth of the cutting edge placed in the same plane; fifth pereopod without a true chela; abdominal pleura large, triangular, or ovate, usually ending in a point; scaphocerite, if present, with the inner margin evenly curved, unarmed . . . **Nephropidae**

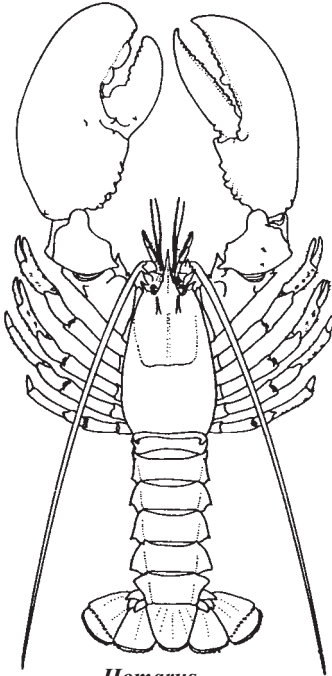
- 4a. Antennal flagelum reduced to a single broad and flat segment, similar to the other antennal segments **Scyllaridae**
- 4b. Antennal flagelum long, multi-articulate, flexible, whip-like, or more rigid → 5

- 5a. Carapace with numerous strong and less strong spines and 2 frontal horns over the eyes; rostrum absent or reduced to a single spine; legs 2 to 4 (usually also 1) without chelae or subchelae **Palinuridae**
- 5b. Carapace with at most a few spines; no frontal horns; rostrum present even though sometimes small; first pereopods simple, rostrum flat, broad, and triangular or broadly oval . . . **Synaxidae**

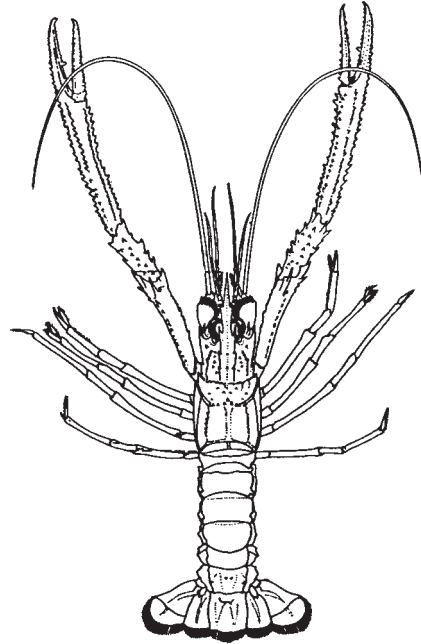
NEPHROPIDAE

True lobsters and lobsterettes

Diagnostic characters: Moderate- to large-sized crustaceans. **Carapace (or 'head')** cylindrical, with a **well-developed median rostrum** and variously ornamented with spines or nodules, occasionally smooth; eyes movable, usually well developed with black pigment, but small and lacking pigment or even absent in some deep water forms. Antennae long and whip-like, antennules slender, ending in 2 long flagella. Tail powerful, with a well-developed fan; abdominal segments smooth, or with one or more transverse grooves, or spiny, or granulate. **First 3 pairs of walking legs ending in true pincers, the first pair, and especially its pincers, usually enlarged.** **Colour:** variable, depending on the species; some drab, others marked with pink or red. Deep sea forms are whitish or pinkish.



Homarus

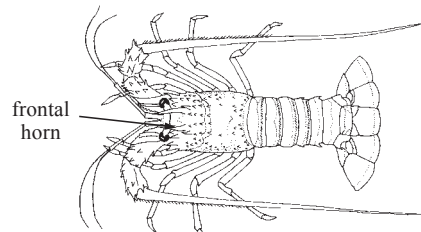


Metanephrops

Habitat, biology, and fisheries: This family comprises 12 species in Fishing Area 31 (11 genera worldwide) ranging in size from 10 to over 120 cm, and occurring in depths ranging from the shoreline to over 1 400 m. All lobsters and lobsterettes are bottom dwelling species, usually preferring hard and irregular bottoms which offer shelter, although some may also occur on open sand or even mud, digging burrows. The only important commercial species at this time in the western Atlantic is the American lobster *Homarus americanus*, but the fishing grounds for this species lie mostly to the north of Area 31. Other species from deeper waters, caught in exploratory trawling cruises, might possibly have some potential when fishing operations extend into deeper water and they are here described on individual sheets to facilitate their identification. In particular, some species of *Metanephrops* and *Nephropsis* caught during commercial fishing operations for the Royal red shrimp (*Pleoticus robustus*) have entered local markets sporadically. No statistics are available on these landings.

Similar families occurring in the area

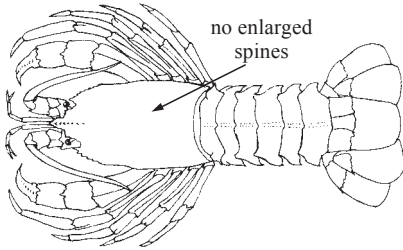
Palinuridae: carapace without a median rostrum, but with strong frontal horns over the eyes; all walking legs without pincers, first pair not greatly enlarged, except in *Justitia*.



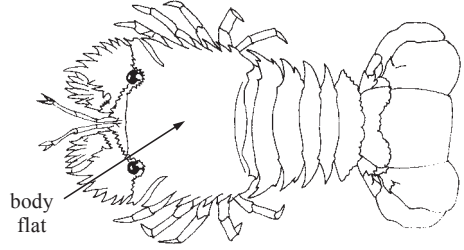
Palinuridae

Synaxidae (*Palinurellus gundiachi*): carapace covered with small, rounded nodules but without enlarged spines; antennae short; walking legs without pincers; entire body hairy and bright orange.

Scyllaridae: body strongly flattened; rostrum rudimentary or absent; no enlarged pincers; antennae scale-like.



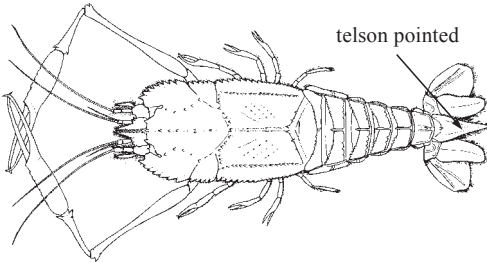
Synaxidae



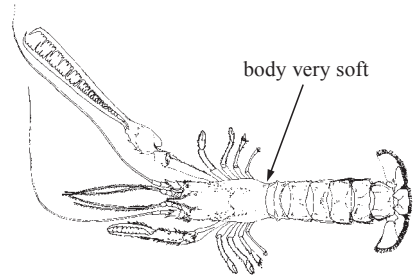
Scyllaridae

Polychelidae (no species of interest to fisheries in Area 31): blind, deep -sea lobster with a very soft body; rostrum absent; 4 to 5 pairs of legs with pincers; telson pointed.

Thaumastochelidae (no species of interest to fisheries in Area 31): blind deep sea lobster with a very soft body; antennal scales with spines (spineless in Nephropidae); fingers of pincers much longer than rest of legs in first pair.



Polychelidae



Thaumastochelidae

Key to the genera of Nephropidae occurring in the area

1a. Rostrum laterally compressed for the larger part of its length, with dorsal and ventral, but no lateral teeth (Fig. 1); carapace with branchiostegal spine; body entirely covered by numerous closely placed and sharply pointed spinules; lateral margin of the telson with 6 to 12 spines *Acanthacaris*

1b. Rostrum dorsoventrally depressed with lateral (and sometimes ventral), but without dorsal teeth; sometimes without any teeth; carapace without a branchiostegal spine; body never uniformly covered with spinules, although granules may be present all over, or spinules may be placed on the carapace; the lateral margin of the telson with at most 3 lateral spines, which if present, area usually small and irregular → 2

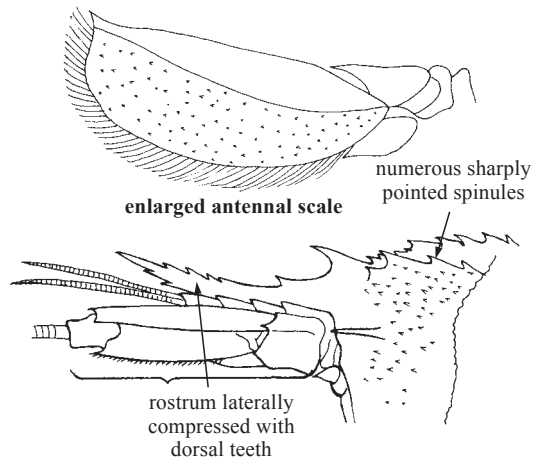











Fig. 1 lateral view of front of carapace (*Acanthacaris*)

- 2a. Scaphocerite absent; carapace without postorbital spine; abdominal sternites unarmed in both sexes; no podobranch on second maxilliped. → 3
- 2b. Scaphocerite present; carapace with a distinct postorbital spine; sternites of second to fifth abdominal somites in the male with a sharp median spine each; podobranch usually present on the second maxilliped → 4
- 3a. Pleura of abdominal somites broadly overlapping; exopod of second maxilliped without flagellum. *Thymops*
- 3b. Pleura of abdominal somites narrow, hardly if at all overlapping; lateral margin of telson unarmed, but for the posterolateral spine; exopod of second maxilliped with a distinct flagellum → 5
- 4a. Eye not pigmented; body granular and hairy, but not covered with evenly placed large pearly tubercles; pleura of second abdominal somite ending in a long sharp point *Nephropsis*
- 4b. Eye pigmented, although cornea small; body entirely covered by conspicuous rounded pearly tubercles; pleura of second abdominal somite broadly trapezoid, distal margin obliquely truncate, ending in a blunt posterior tooth *Nephropides*
- 5a. Left and right first chelipeds unequal, 1 crushing claw, the other cutting claw; antennal spines without a strong posterior carina; first abdominal sternite of the male without a median spine *Homarus*
- 5b. Left and right chelipeds of the first pair similar size and in shape; antennal spine in most species followed by a strong carina; a distinct carina separates the abdominal tergites from the pleura; first abdominal sternite of the male with a median spine (feature not known from *Thymopides*) → 6
- 6a. Supraorbital spine followed by a strong toothed ridge which extends almost to the postcervical groove; posterior part of carapace with several longitudinal carinae. *Metanephrops*
- 6b. Supraorbital spine followed by a single post-supraorbital spine, no supraorbital carina is present; the posterior part of the carapace is evenly granulate, without longitudinal carinae . *Eunephrops*

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Acanthacaris caeca* A. Milne Edwards, 1881.
-  *Eunephrops bairdii* S. I. Smith, 1885.
-  *Eunephrops cadenasi* Chace, 1939.
- Eunephrops manning* Holthuis, 1974.
- Eunephrops luckhursti* Manning, 1997.
-  *Homarus americanus* H. Milne Edwards, 1837.
-  *Metanephrops binghami* (Boone, 1927).
- Nephropides caribaeus* Manning, 1969.
-  *Nephropsis aculeata* S. I. Smith, 1881.
-  *Nephropsis agassizii* A. Milne Edwards, 1880.
- Nephropsis neglecta* Holthuis, 1974.
-  *Nephropsis rosea* Bate, 1888.

References

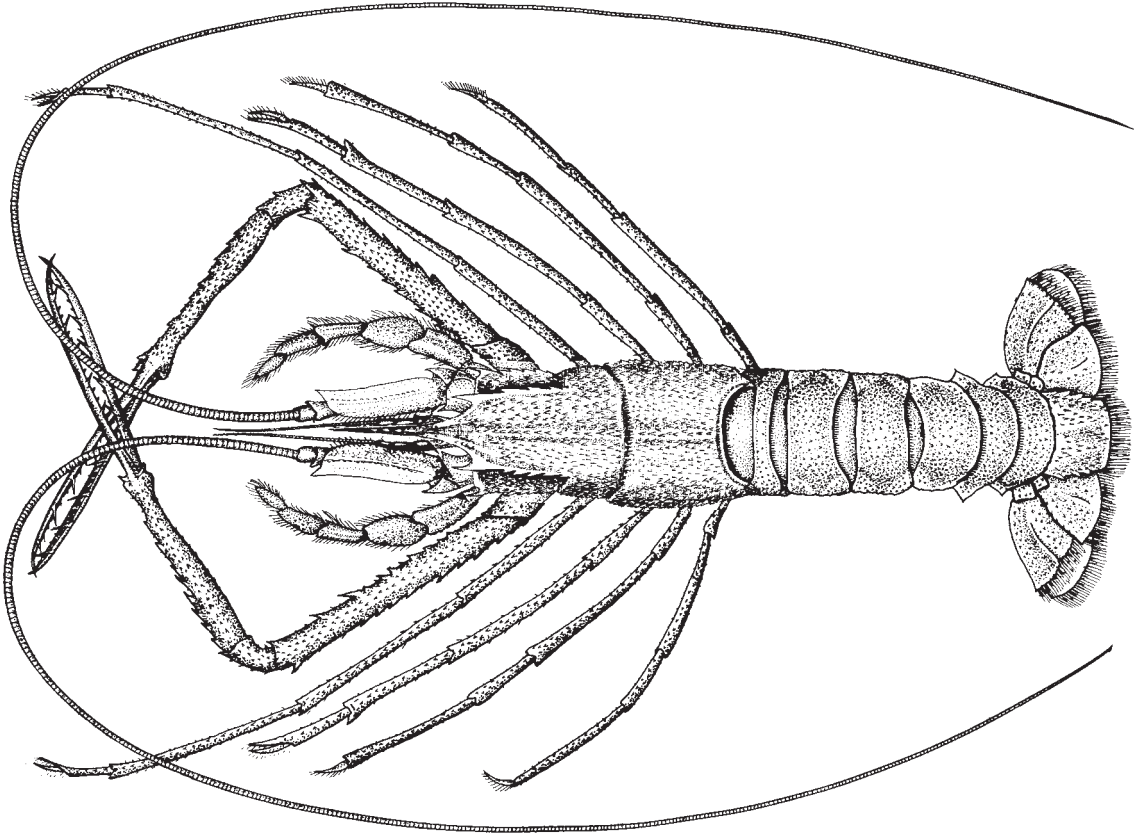
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Acanthacaris caeca (A. Milne Edwards, 1881)

NTK

Frequent synonyms / misidentifications: None / None.

FAO names: **En** - Atlantic deep-sea lobster; **Fr** - Langoustine arganelle; **Sp** - Cigala de fondo.

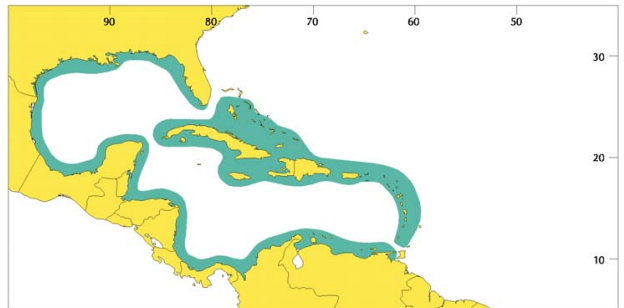


Diagnostic characters: A moderately large lobster. Body cylindrical, completely covered with small spines and sharp tubercles; carapace with a well-developed median rostrum. **Eyes very small, lacking pigment;** antennae long and whip-like; **antennal scales well-developed.** Tail powerful, with a well-developed fan. First 3 pairs of legs ending in true pincers, **the first pair equal, very slender, longer than body, covered with sharp spinules, and ending in elongate and slender fingers with long teeth on cutting edges, but without hairs.** **Colour:** uniform pink.

Size: Maximum length: About 400 mm; commonly 250 mm.

Habitat, biology, and fisheries: A deep sea lobster living in burrows in soft bottoms between 290 and 878 m, usually between 550 and 830 m. Not actively fished for at present. This species has been obtained in sizeable quantities during exploratory deep trawling operations with oversized bottom trawls in the Caribbean.

Distribution: Straits of Florida, Gulf of Mexico, Caribbean Sea, and Brazil (Amapá and Bahia).

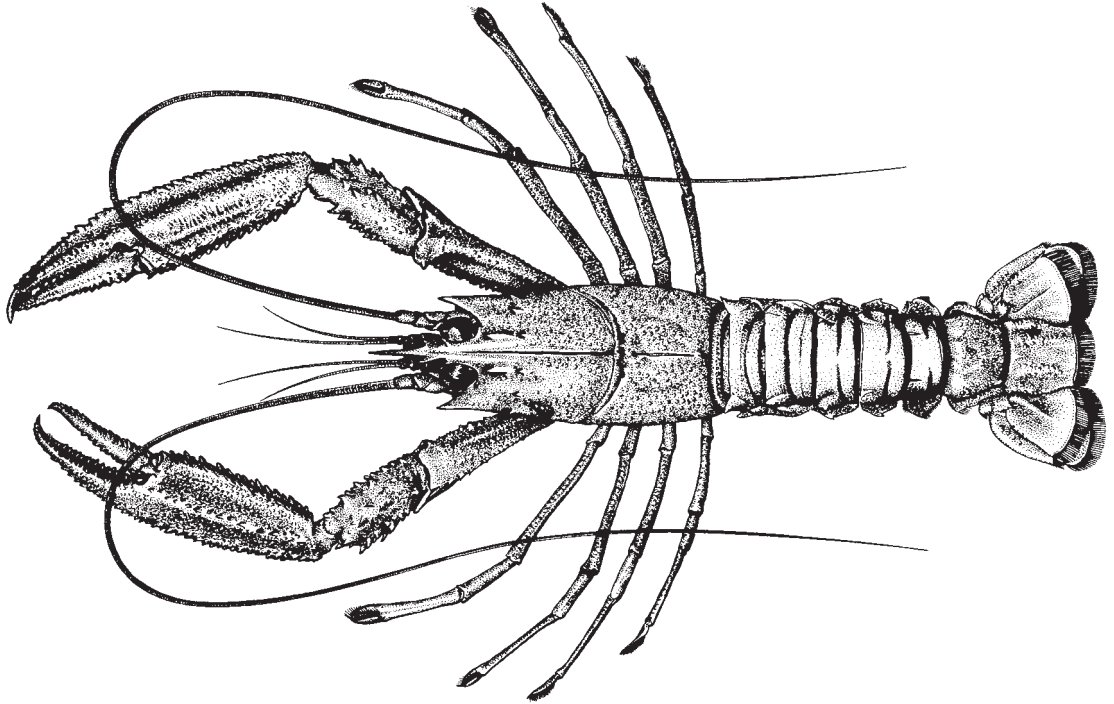


Eunephrops bairdii S.I. Smith, 1885

UFJ

Frequent synonyms / misidentifications: None / None.

FAO names: En - Red lobster; Fr - Langoustine rouge; Sp - Cigala colorada.

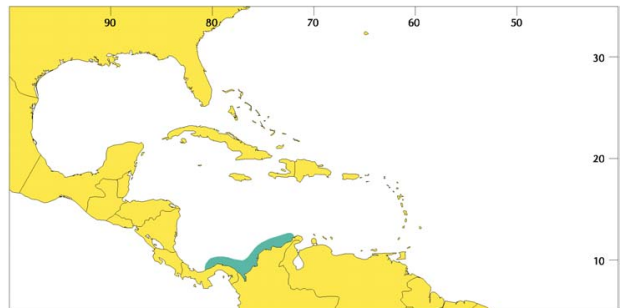


Diagnostic characters: A medium sized lobster. Body cylindrical; carapace granular, with a well-developed median rostrum armed with lateral and ventral teeth, but none on dorsal midline, and without a longitudinal ridge behind cervical groove; a pair of spines dorsally on carapace behind cervical groove. Eyes well developed and pigmented; antennae long and whip-like; small antennal scales present. Tail powerful with a well-developed fan, not conspicuously granulate; each abdominal segment with a deep transverse groove; pleura of second segment squarish in side view. First 3 pairs of legs ending in true pincers, the first pair long and stout with large, flattened, naked fingers. **Colour:** solid red to orange red; cornea black.

Size: Maximum length: about 200 mm.

Habitat, biology, and fisheries: Occurs in soft substrate (mud or coralline rubble) between 230 and 400 m. Although its large size makes it an attractive fishery subject, this deep-water species is not actively fished for at present. It has been taken during exploratory commercial fishing but is scarce.

Distribution: Southwestern Caribbean, off Panama and Colombia.

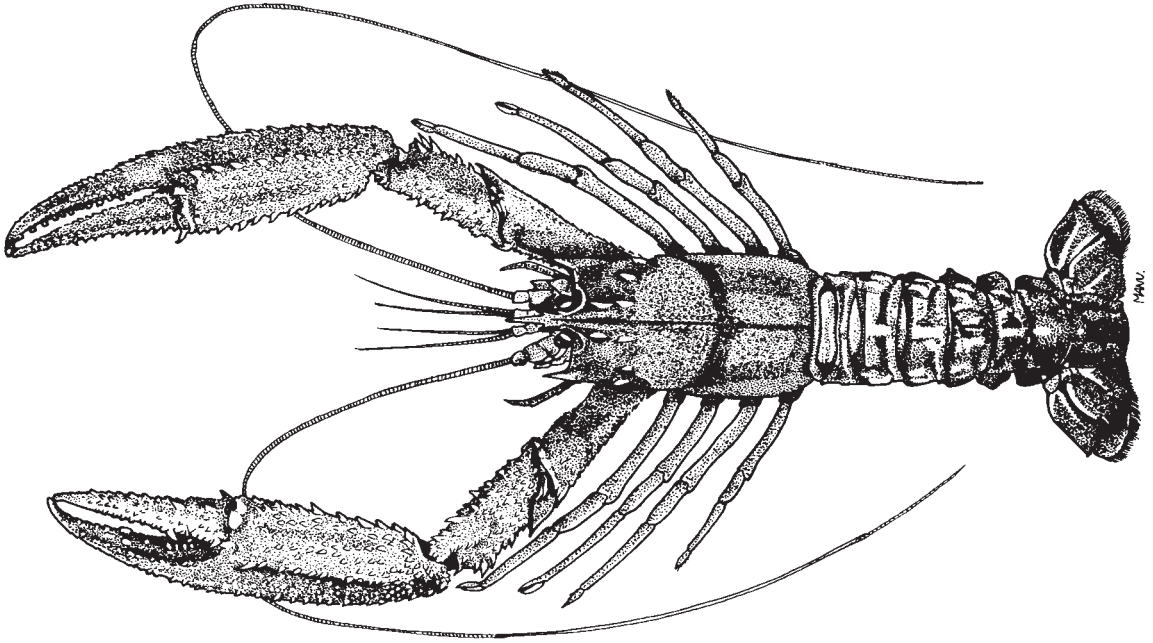


Eunephrops cadenasi Chace, 1939

UPC

Frequent synonyms / misidentifications: None / None.

FAO names: En - Sculptured lobster.

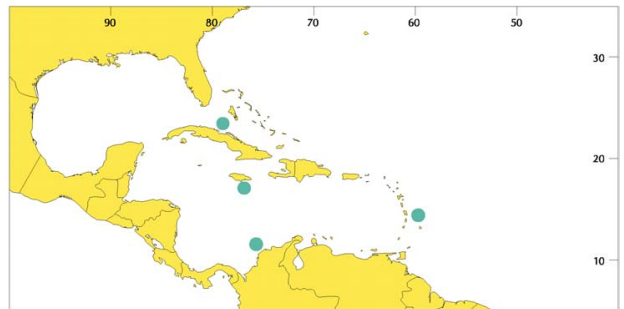


Diagnostic characters: A large lobster. Body cylindrical and smooth; carapace with a well-developed median rostrum. Antennae long and whip-like. No spines dorsally on carapace behind cervical groove. Tail powerful, with a well-developed fan. First 3 pairs of walking legs ending in true pincers (or claws), **those of enlarged first pair massive, flattened, unequal and smooth, without ridges, spines, or hairs.** **Colour:** chelipeds and abdominal ridges primarily beige or yellow; carapace marked with yellow anteriorly; walking legs clear or beige proximally, red distally.

Size: Maximum length: about 300 mm.

Habitat, biology, and fisheries: Occurs between 434 and 607 m depth; mostly common between 450 and 550 m. Sizeable quantities of this species have been reported from Guadeloupe. Its large size and rather high commercial value makes it of interest to fisheries. In Guadeloupe this species is caught with cylindrical traps. Marketed fresh and frozen.

Distribution: Off Bahamas, north of Cuba, Guadeloupe, Dominica and Martinique, Jamaica, and off Colombia.

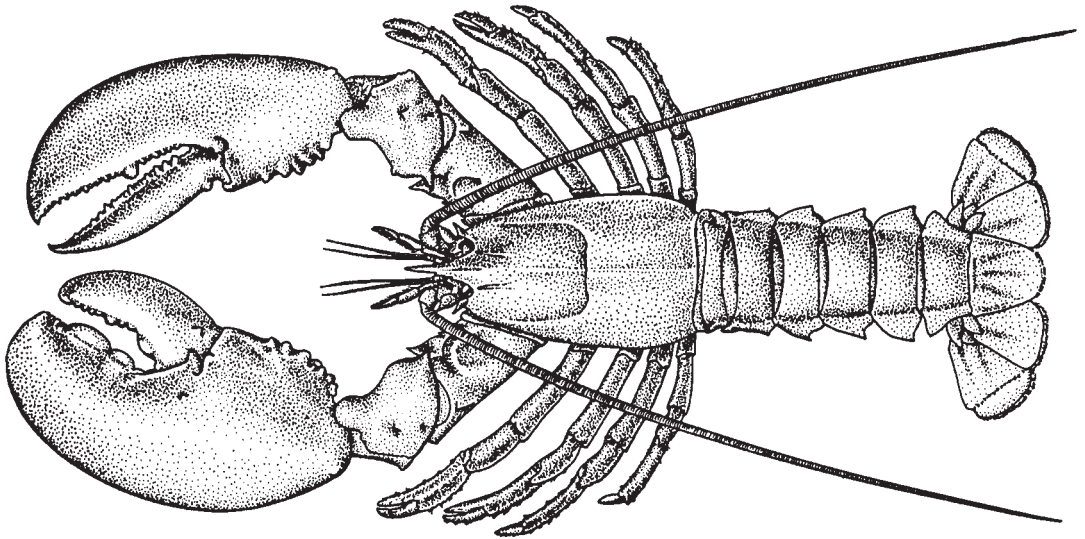


Homarus americanus H. Milne Edwards, 1837

LBA

Frequent synonyms / misidentifications: None / None.

FAO names: **En** - American lobster; **Fr** - Homard américain; **Sp** - Bogavante americano.

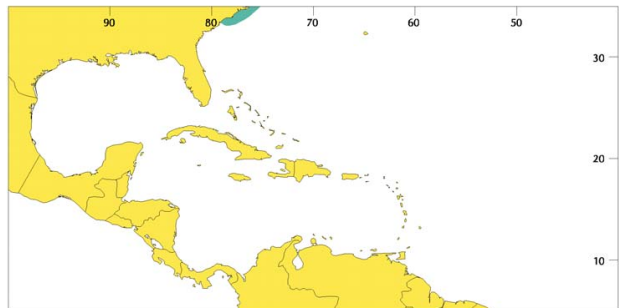


Diagnostic characters: A large lobster. Body cylindrical and smooth; carapace with a well-developed median rostrum. Antennae long and whip-like. Tail powerful, with a well-developed fan. First 3 pairs of walking legs ending in true pincers (or claws), **those of enlarged first pair massive, flattened, unequal, and smooth, without ridges, spines or hairs.** **Colour:** variable, often with a background of yellow or yellowish red, mottled with green or blue; carapace frequently with a blue stripe laterally, overall appearance dark.

Size: Maximum length: exceptionally over 640 mm; usually around 250 mm.

Habitat, biology, and fisheries: Found on various kinds of bottoms, especially rocky substrates, from the shore to depths of 480 m; most common between 4 and 50 m. Ovigerous females are found throughout the year. Migration does not occur, or occurs only on a limited scale. Feeds chiefly on bottom living fishes and crustaceans, molluscs, and other invertebrates. One of the most important Crustacea fisheries in the northwest Atlantic (Area 21). In that area, the capture production from 1984 to 1998 was 402 785 t (mean capture production was 26 852 t/year). It has been reported that small quantities may be landed in the northernmost part of Area 31 but separate statistics are not reported for this species from that area. American lobsters are traditionally obtained with traps, but in recent years trawling proved to be commercially feasible, especially in the southern part of its range. Marketed fresh, frozen, and alive (Beard and McGregor, 1991). The meat is also canned.

Distribution: Western Atlantic from Newfoundland (Canada) to Cape Hatteras, North Carolina (USA).

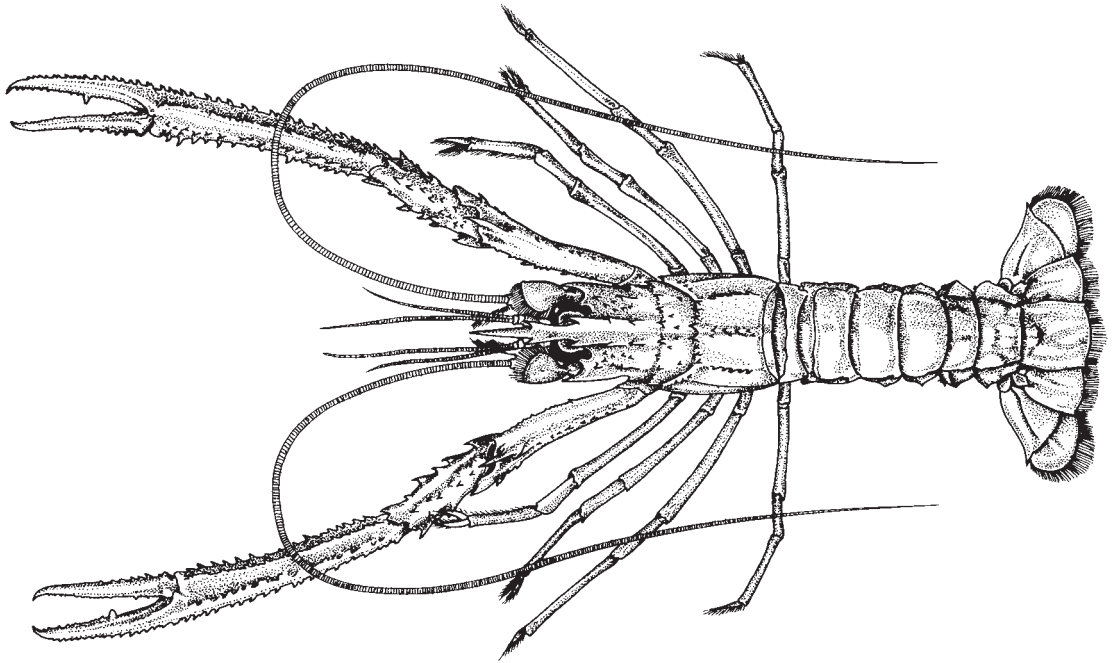


Metanephrops binghami (Boone, 1927)

MFI

Frequent synonyms / misidentifications: None / None.

FAO names: En - Caribbean lobster; Fr - Langoustine caraïbe; Sp - Cigala del Caribe.

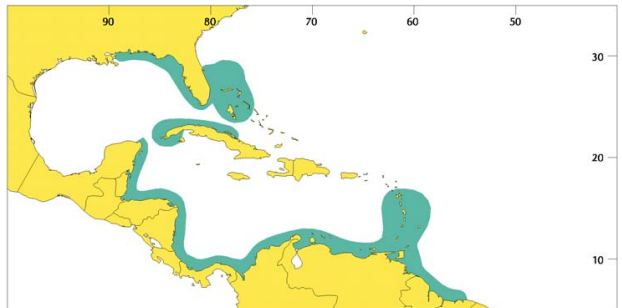


Diagnostic characters: A small to medium-sized lobster. Body cylindrical; carapace spiny, with a well-developed median rostrum armed with lateral and ventral teeth only, and **supraorbital ridges extending behind eyes, the spaces between these ridges nearly smooth; longitudinal ridges present behind cervical groove.** Eyes well developed and pigmented; antennae long and whip-like; **antennal scales present.** Tail powerful, with a well-developed fan and **smooth, shiny abdominal segments without transverse grooves.** First 3 pairs of legs ending in true pincers, the **first pair very long and moderately slender, square in cross-section, with rows of spines along ridges.** **Colour:** pinkish, with lateral stripes of red and white along body.

Size: Maximum length: 170 mm; usually around 120 mm.

Habitat, biology, and fisheries: Occurs between 230 and 700 m; most commonly obtained between 300 and 500 m on sand and mud bottoms. The Caribbean lobster is not actively fished for at present. In exploratory trawling operations off Nicaragua and Colombia this species was obtained in commercially attractive quantities (about 10 kg/h). Outside of the area, its counterpart *Metanephrops rubellus* is quite common in the Brazilian markets where it is sold frozen.

Distribution: From the Bahamas and southern Florida to French Guiana, including the Gulf of Mexico and the Caribbean Sea.

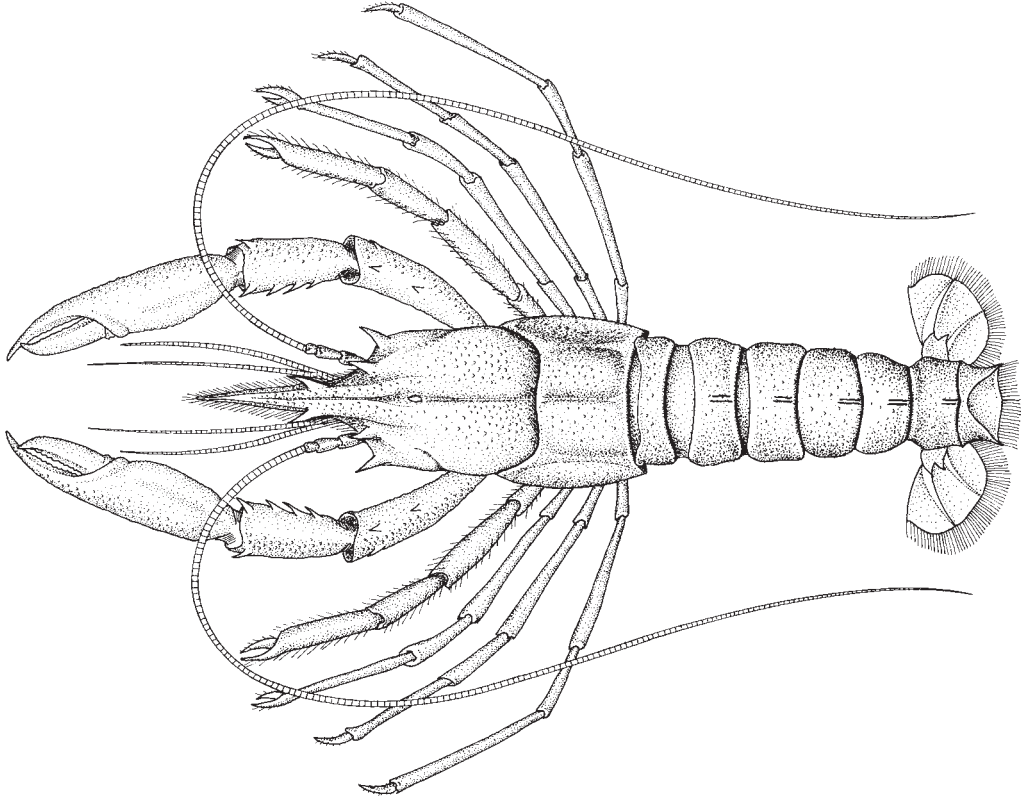


Nephropsis aculeata S.I. Smith, 1881

NFU

Frequent synonyms / misidentifications: None / None.

FAO names: En - Florida lobsterette; Fr - Langoustine de Floride; Sp - Cigala de Florida.

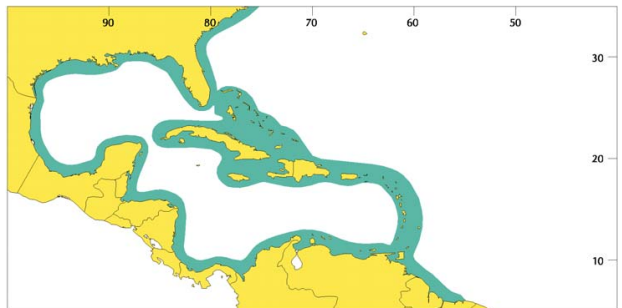


Diagnostic characters: A small lobster. Body cylindrical; carapace granular, with a well-developed median rostrum armed with 1 pair of lateral spines; a single spine behind each eye. Eyes very small, lacking pigment; antennae long and whip-like, antennal scales absent. Tail powerful, with a well-developed fan; pleura (lateral projections) of second abdominal segment triangular, without spines on front edge. First 3 pairs of legs ending in true pincers, the first pair stout with short, very hairy (woolly) fingers. **Colour:** generally pink or red, variable.

Size: Maximum length: about 140 mm; usually 80 mm.

Habitat, biology, and fisheries: Occurs between 130 and 830 m, usually between 200 and 600 m, on mud or fine sand. Potential considerable densities of this species (up to 40 kg/h) have been revealed in the Gulf of Mexico (off the mouth of the Mississippi river and off east Florida on royal red shrimp grounds) by exploratory trawling operations. Separate statistics are not reported for this species. Probably marketed fresh or frozen.

Distribution: From off Massachusetts and Bermuda southward through the Gulf of Mexico and the Caribbean Sea, including the Antilles, Suriname, French Guiana, to Brazil (from Espírito Santo to São Paulo).

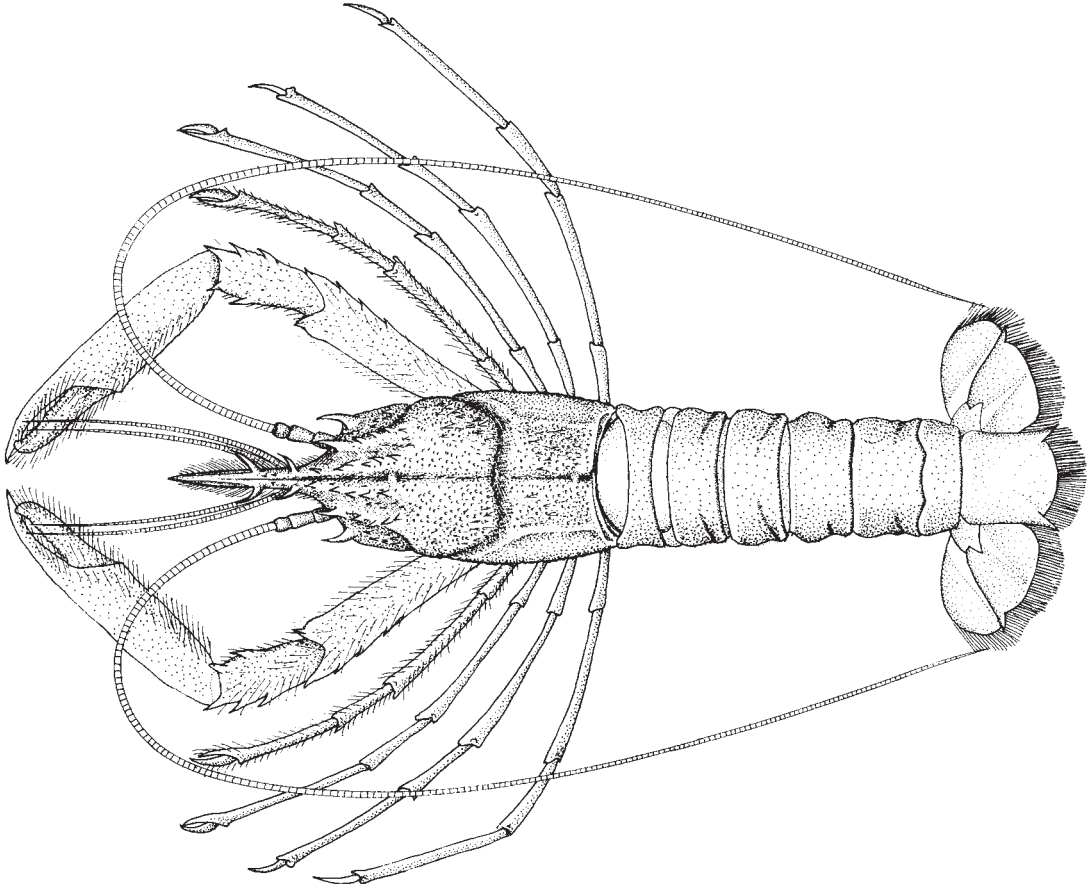


Nephropsis agassizii A. Milne Edwards, 1880

NFZ

Frequent synonyms / misidentifications: None / None.

FAO names: **En** - Prickly lobsterette; **Fr** - Langoustine épineuse; **Sp** - Cigala de grano.

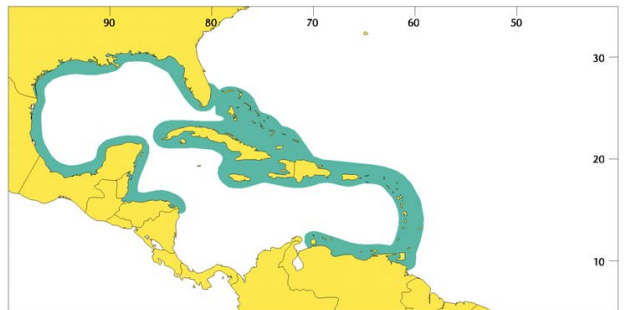


Diagnostic characters: A small lobster. Body cylindrical; carapace granular, with a well-developed median rostrum armed with 2 pairs of lateral spines. **Eyes very small, lacking pigment;** antennae long and whip-like, **antennal scales absent.** Tail powerful, with a well-developed fan; **pleura (lateral projections) of second abdominal segment with 2 spines on front edge.** First 3 pairs of legs ending in true pincers, the first pair moderately stout with **short, granular, hairy, but not woolly fingers.** **Colour:** bright red.

Size: Maximum length: about 120 mm.

Habitat, biology, and fisheries: Found at depths between 470 and 1 750 m, usually between 900 and 1 400 m, on mud bottoms. Not fished for at present. Its small size and density makes it unattractive for fisheries purposes. The species has been taken sporadically in deep trawling operations of exploratory fishing vessels but never in commercial quantities.

Distribution: Bahamas, Gulf of Mexico, Caribbean Sea, Tobago, and Brazil (Bahia and São Paulo).

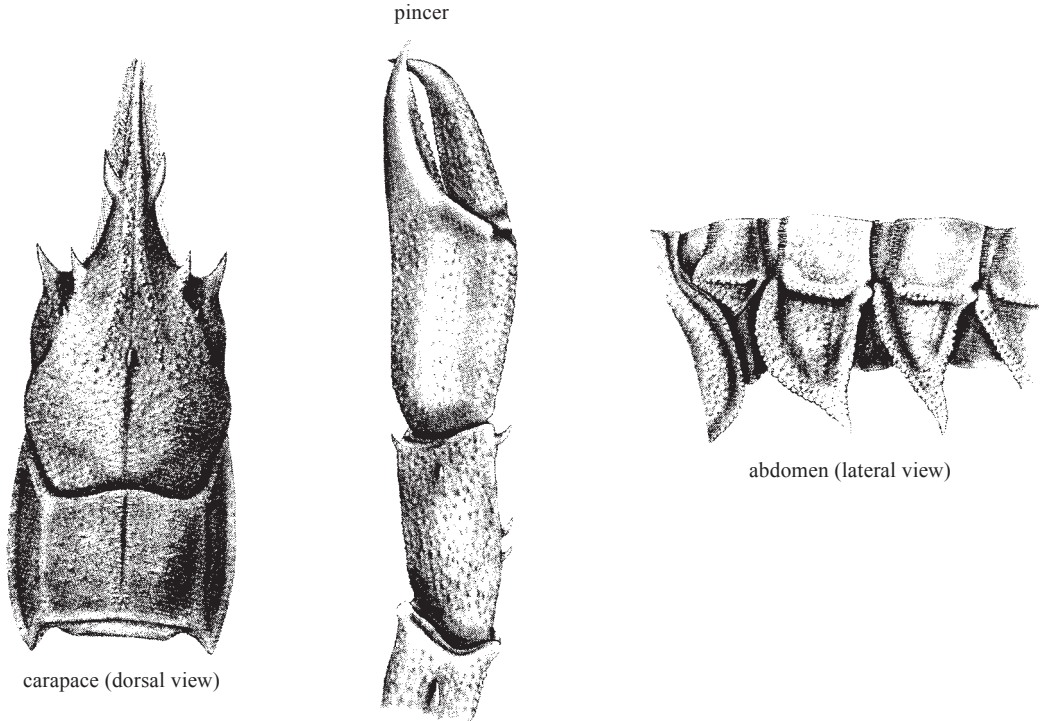


Nephropsis rosea Bate, 1888

NFI

Frequent synonyms / misidentifications: None / None.

FAO names: En - Two-toned lobsterette; Fr - Langoustine bicolore.



Diagnostic characters: A small lobster. Body cylindrical; carapace granular with well-developed median rostrum armed with only 1 lateral spine at either side. Eyes small; antennae long and whip-like, antennal scales absent. Tail powerful, with a well-developed fan; pleura (lateral projections) of second abdominal segment with no spines on front edge. **Colour:** upper part of body pale, ventral surface darker, orange or orange-red.

Size: Maximum length: about 130 mm.

Habitat, biology, and fisheries: Found at depths between 420 and 1 260 m, usually between 500 and 800 m, on muddy and sandy bottoms. Potential interest to fisheries as the species is not rare. Not fished for at present.

Distribution: From Bermuda to Brazil (Bahia and Espírito Santo), including the Gulf of Mexico, Caribbean Sea, and Guyana.

