

Geographical Distribution : Southern Atlantic Ocean. On the shelf of the islands of the Tristan da Cunha group (viz., Tristan da Cunha, Inaccessible Island, Nightingale Island, and Gough Island), as well as on Vema Sea Mount, 1 680 km ENE of Tristan da Cunha (Fig. 198).

Habitat and Biology : Depth range from 0 to 200 m; the greatest concentration of animals occurs between 20 and 40 m. The species is found on rocky bottoms, sometimes with gravel or shells, in the kelp zone. Oviparous females were taken in September.

Size : Maximum total body length, 355 cm (males), and 27 cm (females); maximum carapace length, 14.5 cm (males) and 10 cm (females). Average carapace length, 8 to 9 cm. Pueruli are 2 to 3 cm in length.

Interest to Fisheries : Until about 1950, the fishery of the species was oriented, almost exclusively towards local consumption. But in 1949, a Tristan da Cunha Exploration (later: Development) Company was founded and the lobster fishery was developed on a commercial basis; a cold storage and a canning plant were built, and one fishing vessel was operated.

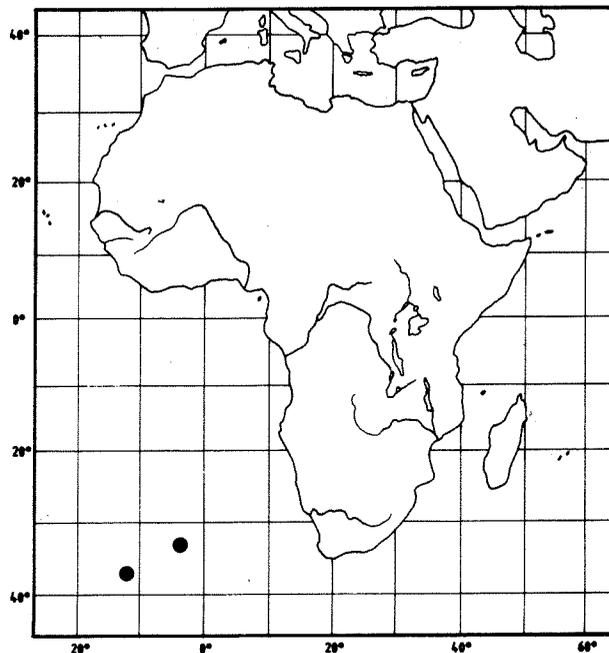


Fig. 198

Diesel-powered dinghies were used to bring the catch to the mother vessel for cold storage and subsequent delivery to the factory. The volcanic eruption of 1961 destroyed the shore installations and the company, which had not been very successful anyhow, was liquidated in 1962. In 1963, a new fishing company, the South Atlantic Islands Development Corporation, started operations after the islanders had returned to Tristan da Cunha. A harbour was built and in 1966 a new factory was established. Two fishing vessels with refrigeration facilities on board, worked with a number of dinghies, and resumed fishing operations in 1963. Later the larger fishing vessels were modernized, and the fleet was enlarged in 1971 to 4 vessels with facilities on board for heading the lobsters and freezing the tails. The number of vessels was again reduced in 1978, when there were again two. They were based in Cape Town and operated near the Inaccessible, Nightingale and Gough Islands. They used dinghies and later motorboats to put out and retrieve the nets and traps. From Tristan da Cunha Island, the dinghies and motorboats worked from the shore, the catch being processed in the factory there.

The gear used in the early days was a piece of bait on a long string and weighted with a stone. The bait was lowered into the sea and after a few minutes hoisted to the surface. The lobsters clinging to the bait (often like "a bunch of grapes") were then taken. Later, the dinghies and motorboats used hoop-nets and since 1967, metal traps on long lines. The inclement weather conditions allow only about 70 fishing days a year.

The yield in 1960-1961 was 52.5 tons of tails. Pollock (1981:49) estimated total annual yield at 500-800 tons. FAO statistics give the annual catch for 1987 as 405 tons, and for 1988 as 441 tons.

Local Names : TRISTAN DA CUNHA (UK): Crawfish, Tristan crawfish, Tristan da Cunha crayfish, Tristan da Cunha Spiny

Literature : Holthuis & Sivertsen, 1967:7 18, text-figs 1,2, pls. 1-3; Roscoe, 1979:1-47, figs 1-3; Pollock, 1981:49-66, figs 1-11; Williams, 1986: 14, fig. 28.

Subgenus *Sagmariasus* nov.

Type species : *Palinurus verreauxi* H. Milne Edwards, 1851. Gender masculine.

This new subgenus of the genus *Jasus* differs from the nominotypical subgenus by the absence of any sculpturation on the abdomen: the characteristic scalloped pattern found in all species of *Jasus* s.s. is completely lacking here. Furthermore, the rostrum of *Sagmariasus* is as large and strong as the frontal horns and is of the same shape, forming with the frontal horns a tridentate plate. In *Jasus* s.s. the rostrum is a small spine, much smaller than the frontal horns and placed on a much lower level. In *Sagmariasus* the antennulae are much less slender than in *Jasus* s.s.

The new subgenus includes a single species, *Jasus (Sagmariasus) verreauxi* (H. Milne Edwards, 1851), which is its type.

Derivatio nominis: the greek word Sagmarion, meaning packhorse, is combined here with Jasus. The name alludes to the vernacular name "Packhorse crayfish" given in New Zealand to large specimens of the type species. The derivation of the generic name *Jasus* has not been given by its author, but it may refer to lasus, the latin name of a locality in Asia Minor west of the town of Milas in south west Turkey (37°19'N 27°48'E).

Jasus (Sagmariasus) verreauxi (H. Milne Edwards, 1851)

Fig. 199

PALIN Jas 7

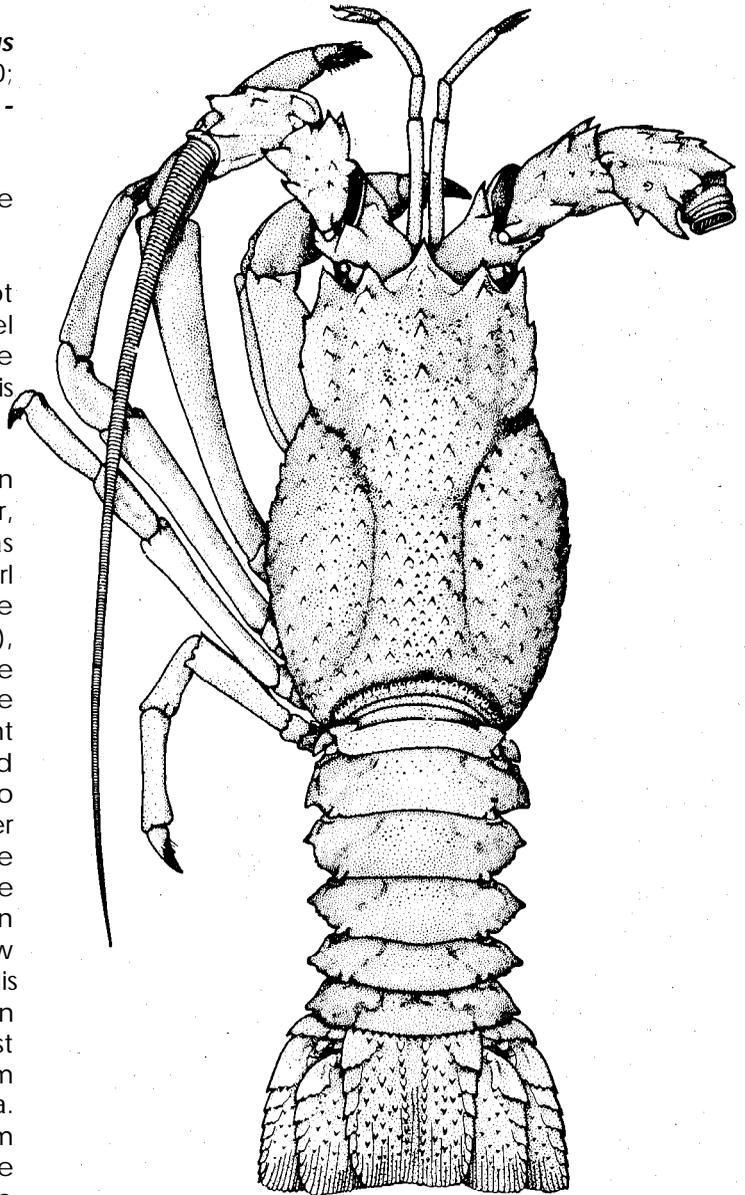
Palinurus verreauxi H. Milne Edwards, 1851, *Annales Sciences Naturelles, Paris, Zool.*, (3)16:255, 290, pl. 8 fig. 15.

Synonyms : *Palinurus huegelii* Heller, 1862; *Palinurus tumidus* Kirk, 1880; *Palinurus giganteus* Kirk, 1880; *Jasus huegelii* - Ortmann, 1891; *Palinosytus huegelii* - Stebbing, 1893:

FAO Names : En - Green rock lobster; Fr - Langouste d'Océanie; Sp - Langosta de Oceania.

Type : Type locality of *Palinurus verreauxi*: not mentioned in the original description but Gruvel (1911: 15) made clear that H. Milne Edwards' type material came from New South Wales, Australia and is in MP, evidently no longer extant (not located in 1989).

The type locality of *Palinurus huegelii*: "wurde von Baron Hügel im indischen Ocean gesammelt" (Heller, 1862:393). This information is obviously erroneous as the species does not occur in the Indian Ocean. Karl Alexander Anselm Freiherr von Hügel, baron of the German Empire (born in Regensburg (= Ratisbon), Bavaria, 25 April 1795, died in Brussels, Belgium, 2 June 1870) spent most of his youth in Austria and was in the service of the Austrian government until his retirement in 1867. Being much interested in horticulture and natural history, he travelled between 1830 and 1836 to England, France and India. He left India in September 1833 and then visited the Philippines, Malaysia, the Netherlands East Indies, the South Pacific but also "the Swan river, King George's Sound, and Sydney in Australia; Van Diemen's Land [=Tasmania], New Zealand, Norfolk Island" (A. von Hügel, 1903:73). His visits to New Zealand and Australia took place between September 1833 and 6 October 1834, at the last mentioned date he left Sydney for the Philippines, from where he returned home via China, Malaysia and India. The type of *Palinurus huegelii* can originate either from the Sydney area or from New Zealand, as those are the two only localities visited by Von Hügel, where the species occurs. The type material, probably a holotype, is in NMW.



(from Kensler, 1967)

Fig. 199

Type locality of *Palinurus tumidus* (and *P. giganteus*): "Whaingaroa, a small harbour on the West Coast of the North Island", New Zealand (Kirk, 1880:313), collected in 1877 by J. Buchanan. Holotype male, dry in DMW, no. 5700.

Geographical Distribution : New Zealand (all around North Island, but most common on the north coast; rare in South Island waters, with a few records from the west, north and north east coast and one from the south point), Kermadec Islands (rare, Chilton (1911:549) reported on 2 specimens from Sunday (= Raoul) and Denham Islands, but no records have been published from the Archipelago since), Chatham Islands (Michael & Booth, 1985:18). Australia (from southern Queensland to Victoria; a few records from Tasmania) (Fig. 200).

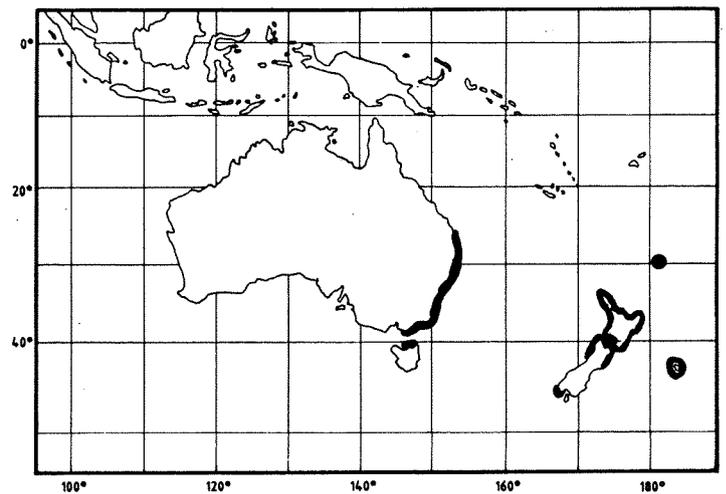


Fig. 200

Habitat and Biology : The species usually occurs in depths between 0 and 155 m, but very few data on depth are published. Booth (1986:2212) indicated that specimens with a tail length of less than 21.6 cm occur at depths between 20 and 130 m, and that the main fishery takes place between 50 and 150 m. The substrate is said to be usually sand, gravel, or rocks. Smaller specimens seem to be more frequent on a rocky bottom. Females are ovigerous from late September to January.

Size : The maximum total body length is 60 cm (carapace length about 25 cm). Ovigerous females with a total body length of 38 to 56 cm have been reported (carapace lengths 16 to 24 cm). This species, probably together with *Homarus americanus*, is the largest known decapod as far as body length is concerned (see Kaestner, 1970:274).

Interest to Fisheries : The species is fished in the northern part of its range both in New Zealand and Australia. Eighty percent of the New Zealand catches are taken on the north coast of North Island between Cape Maria van Diemen and North Cape; the rest of the catches come mainly from the north coast between North Cape and Cape Runaway (Kensler, 1967:419). Booth (1986:2213) reported that "the species is caught most commonly along the north and east coasts of North Island north of Cape Turnagain [= 40°29'S]. In Australia, the fishery for this species also is concentrated in the northern part of its range, namely north and south of Sydney (Port Stephens, 32°42'S, to Bateman's Bay, 35°45'S). Ogilby (1893:201) remarked that "so abundant is this Crayfish, and with proper legislative precautions, so apparently inexhaustible the supply, that at but little expense a great and profitable canning industry might with ease be established". Gruvel (1911:16) described the fishery for this species near Sydney, carried out with motor boats with a crew of 2 to 4 men, putting out lobster pots and trammel nets among the rocks in coastal waters. Dakin, Bennett & Pope (1969:183) mention that in New South Wales the species is mostly taken with lobster pots, but that it also "constantly falls a prey to the wiles of the spear-gun fisherman", while "we have seen an expert catch over a dozen with his hands in an hour or two while wading amongst the weed along the edge of a rock platform at low water". The same authors also mention that the animals are preferably shipped alive to the markets, since by freezing and cooking much of the taste is lost. Kensler & Skrzynski (1970:46-54) observed that in New Zealand lobster pots are used most, but that lobsters are also obtained by trawling and with Danish seines. As to protective measures, in New Zealand the size limit is 21.6 cm tail length, or carapace length 16.3 cm (males) and 15.5 cm (females), while also the catch of ovigerous females is prohibited.

As far as the commercial importance of *Jasus verreauxi* in New Zealand is concerned, this is dwarfed when compared to that of *J. edwardsii*; its annual catch being less than 1% of that of *J. edwardsii* (see Kensler & Skrzynski, 1970:46). Between 1962 and 1966 these annual catches of *J. verreauxi* in New Zealand varied between 23 and 66 tons, with an average of 36 tons. The FAO Yearbook of Fishery Statistics gives the following landings (in metric tons) for New Zealand: 10 tons in 1987 and 6 tons in 1988. The annual landings (in tons) for the species in Australia are much higher; in Fishing Area 81 (= New South Wales) they totalled 200 in 1987 and in 1988, and in the area 57 (= Victoria, Tasmania, South Australia and Western Australia) 5 000 tons in both these years. Since *J. verreauxi* is absent or scarce in fishing area 57 and as *J. novaehollandiae* is not represented in the FAO statistics, it seems most likely that these Australian figures correspond to *J. verreauxi* and *J. novaehollandiae* combined, and thus give a wrong impression.

Local Names : AUSTRALIA: Eastern rock lobster (official Australian name), Australian crayfish, Common crayfish, Common Sydney crayfish, Eastern crayfish, Green cray, Green crayfish, Marine crayfish, New South Wales spiny lobster, Sea crayfish, Sydney crayfish; NEW ZEALAND: Packhorse crayfish, Green crayfish, Green lobster, Packhorse lobster, Smooth-tailed crayfish; Pawharu (Maori)

Literature : Kensler, 1967:207-10, pl. 1.

Remarks : The name *Palinurus giganteus* was only qualifiedly given by Kirk, 1880:313 ("although perhaps, *giganteus*, would be quite as appropriate"). It falls as an objective synonym of *Palinurus tumidus* Kirk.

Justitia Holthuis, 1946, *Temminckia*, 7:113, 115. Gender feminine.

Type Species: by original designation: *Palinurus longimanus* H. Milne Edwards, 1837.

Synonyms : *Nupalirus* Kubo, 1955, *Journal Tokyo University Fisheries*, 41(2): 185. Type species, by original designation and monotypy: *Nupalirus japonicus* Kubo, 1955. Gender masculine.

The genus includes three species, none of which so far is of commercial importance; the possibility that they will ever be of interest to fisheries is very slim.

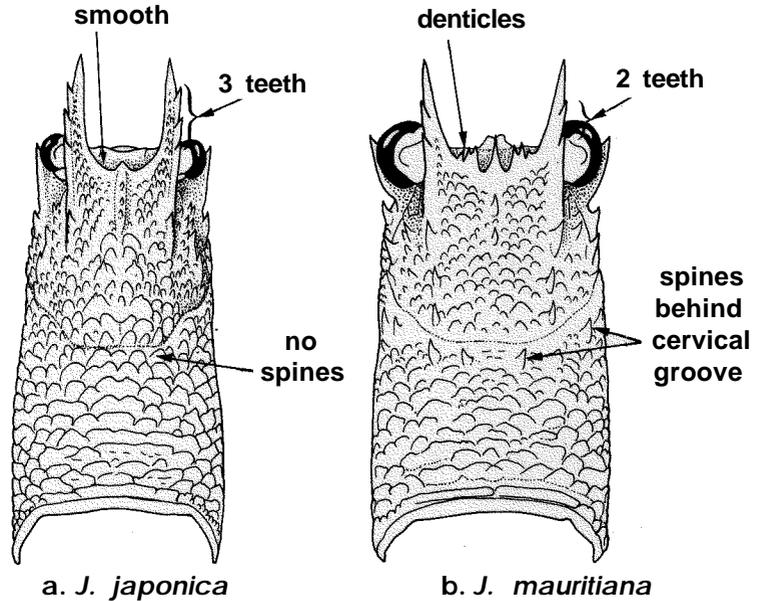
Key to Species:

1a. Frontal horns with three dorsal teeth. Anterior margin of carapace between the small, spiniform rostrum and the frontal horns without teeth. Carapace without spines behind the cervical groove (Fig. 201a); 6 or 7 transverse grooves on the second to fifth abdominal somites, all reaching to the base of the pleura (Fig. 202a); Indo-West Pacific *J. japonica* (Fig. 203)

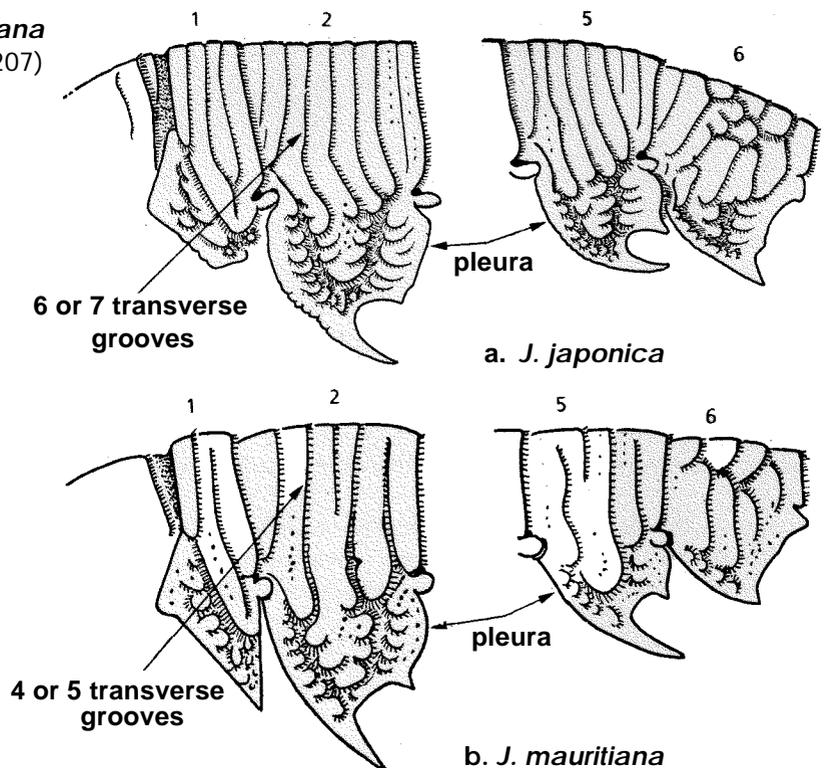
1b. Frontal horns with two dorsal teeth. Anterior margin of carapace with several sharply pointed small teeth between the small spiniform rostrum and the frontal horns. Carapace behind cervical groove with spines (Fig. 201 b); 4 or 5 transverse grooves on the second to fifth abdominal somites, not all reaching to the base of the pleura, and some interrupted dorsally (Fig. 202b)

2a. Atlantic species *J. longimanus* (Fig. 205)

2b. Indo-West Pacific species .. *J. mauritiana* (Fig. 207)



carapace (dorsal view) (from Crosnier, 1977) Fig. 201



1st and 2nd, and 5th and 6th abdominal somites in lateral View (from Gordon, 1960) Fig. 202

Justitia japonica (Kubo, 1955)

Fig. 203

PALIN Just 3

Nupalirus japonicus Kubo, 1955, Journal Tokyo University Fisheries, 41(2); 185, pls. 12,13.

FAO Names : En - Japanese furrow lobster.

Type : Type locality: "about 8 miles off Shimokawaguchi (Shimizu city), Kōchi Pref., Japan". Holotype male "in the biological museum of Kōchi Prefecture Women's University"

Geographical Distribution : Indo-West Pacific region: Madagascar (N.W. coast near Majunga, and SE. coast near Fort Dauphin), Mauritius, Reunion, Japan (off Pacific coast of central and southern Japan from Kii Peninsula to the south coast of Shikoku Island; Bonin Islands) (Fig. 204).

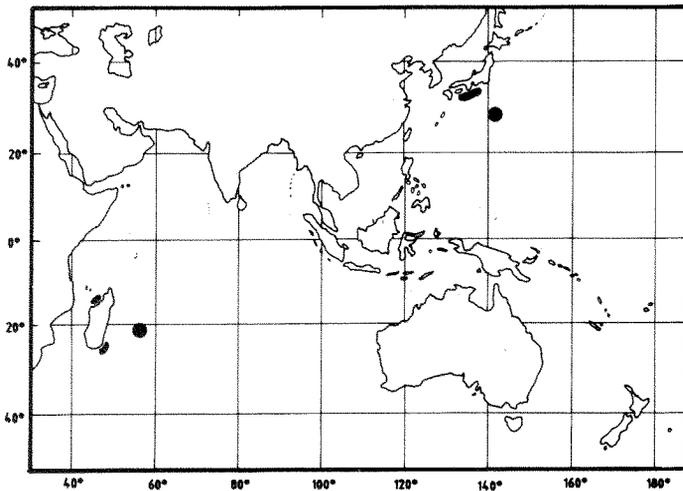
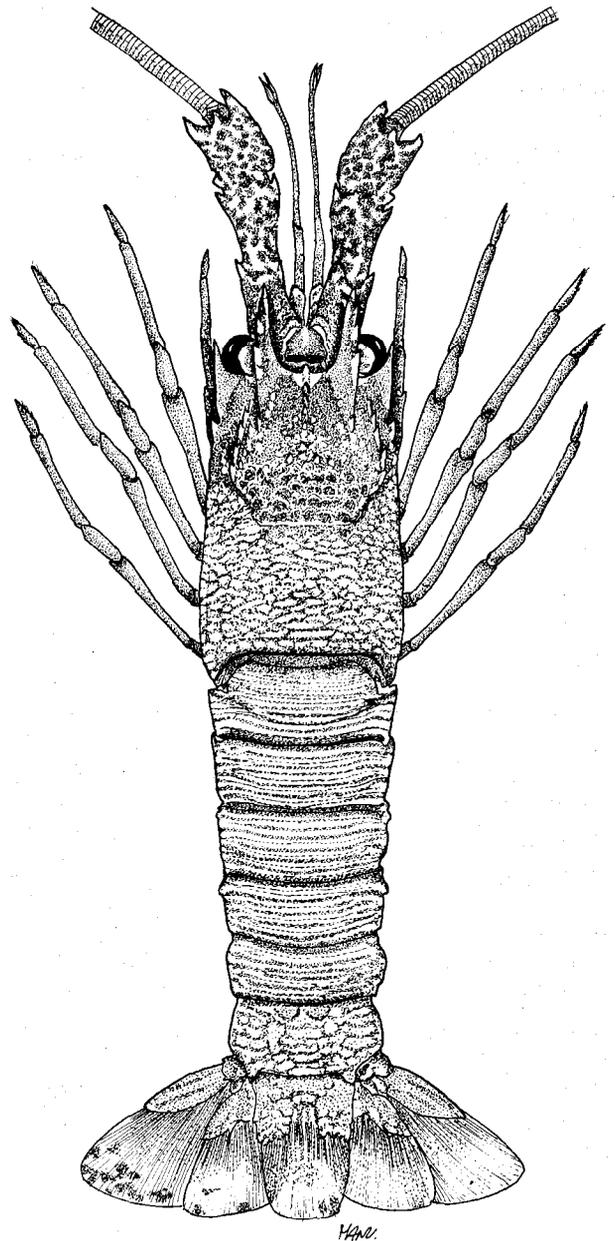


Fig. 204



(after Baba et al, 1986)

Fig. 203

Habitat and Biology : Depth range from 40 to 200 m. According to Crosnier & Jouannic (1973: 13) the species seems to prefer rocky substrates.

Size : Maximum total body length 24 cm; usually not more than 20 cm. Carapace length 6 to 9 cm.

Interest to Fisheries : At present none. Specimens are occasionally taken in lobster pots and trap nets; the habitat evidently is inaccessible to trawls. Sekiguchi & Okubo (1986:21) reported an annual catch of 4 to 41 specimens (between October and April) of this species in Mie Prefecture, Japan. Many of the specimens were placed in the several public aquaria in Japan.

Local Names : JAPAN: Ryoma ebi

Literature : Gordon, 1960, pp. 296-305, figs 1-6; Baba et al., 1986, pp. 154, 155, 282, fig. 105.

Justitia longimanus (H. Milne Edwards, 1837)

Fig. 205

PALIN Just 1

Palinurus longimanus H. Milne Edwards, 1837
Histoire naturelle des Crustacés, 2:295.

Synonyms: Sometimes when used with the generic name *Justitia*, the specific name is incorrectly spelled *longimana*, probably because *Justitia* is a feminine name. However, as *longimanus* is a noun, its ending is not to be changed with the gender of the generic name (International Code, Art. 31(b)ii).

FAO Names : En - West Indian furrow lobster; Fr - Langouste caraïbe; Sp - Langosta de muelas.

Type : Type locality: "Habite les Antilles". Type material in MP, no. Pa 421, dry in rather good condition. This type specimen, if not the holotype, is here selected the lectotype. Not located in 1989.

Geographical Distribution : Western Atlantic region: Bermuda, S. Florida (USA), Caribbean arc from Cuba to Isla Margarita (Venezuela), Curaçao, and E. Brazil (Espiritu Santo State) (Fig. 206).

Habitat and Biology : Depth range from 1 to 300 m, usually between 50 and 100 m. Inhabits the outer parts of coral reef slopes.

Size : Maximum total body length about 15 cm, usually up to 10 cm.

Interest to Fisheries : Very slight. The species is not the object of a special fishery, but is sometimes caught incidentally in lobster pots at greater depths. Morice (1958:86) lists the species among the edible Crustacea of Martinique, and states that it is consumed locally by the fishermen, but appears hardly, if ever, on the markets.

Local Names : CUBA: Camarón de lo alto; CURACAO: Kreef di laman hundu (= deep sea lobster), Kreef di awa blau (= blue water lobster) (Papiamentu language); GUADELOUPE: Criquet (St. Barthelemy); MARTINIQUE: Homard bresilien; USA: Long-armed lobster, Long-armed spiny lobster.

Literature : Fischer (ed.), 1978: vol. 6.

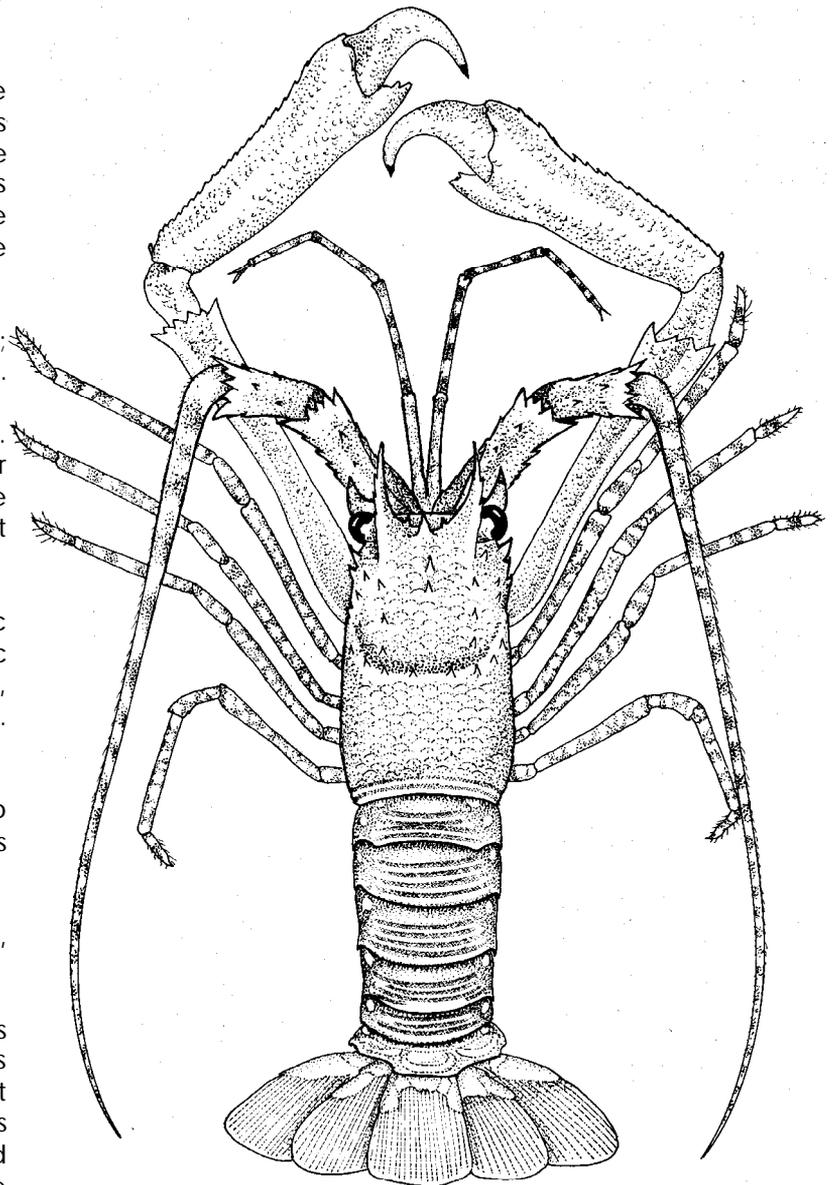


Fig. 205

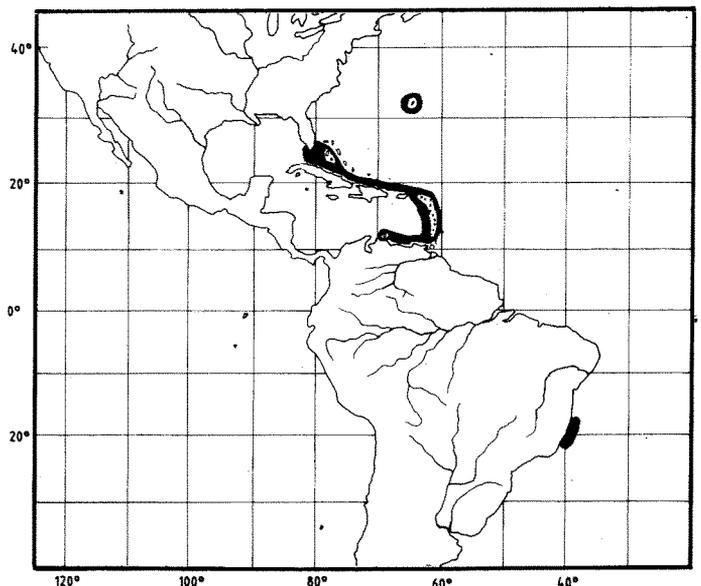


Fig. 206

Justitia mauritiana (Miers, 1882)

Fig. 207

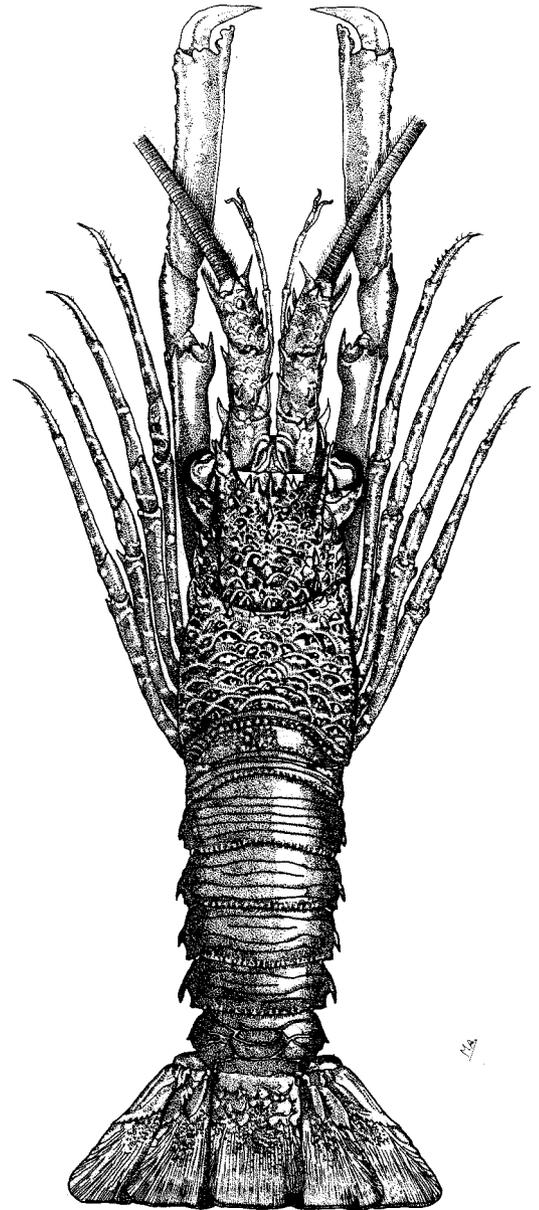
Palinurus longimanus mauritanus Miers, 1882, Proceedings Zoological Society, London, 1882:540, pl. 36 fig. 1.

Synonyms: *Justitia longimana mauritania* - Holthuis, 1946.

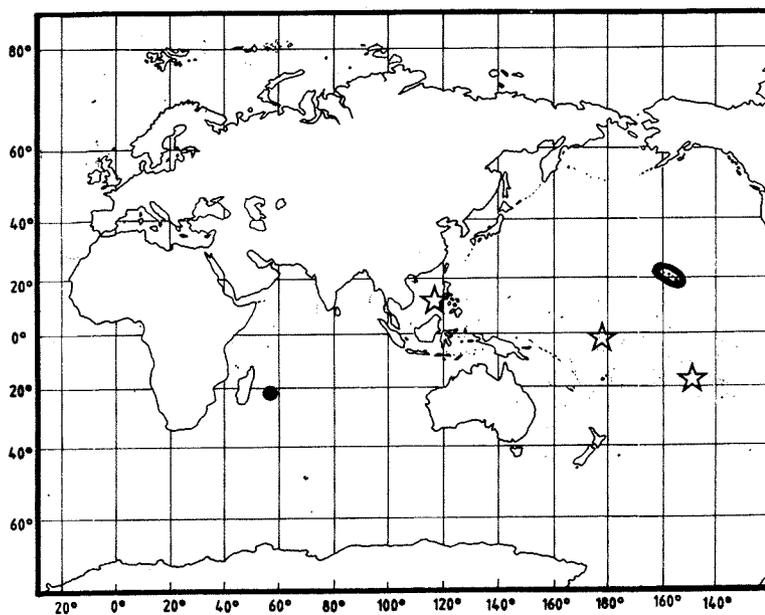
FAO Names : En - Gibbon furrow lobster; Fr - Langouste gibbon.

Type : Type locality: Mauritius, "in a fishing-net at a depth of 40 fathoms" (= 73 m). Holotype male, in BM, no 81.12 (dry, condition fair).

Geographical Distribution : Indo-West Pacific region: Western Indian Ocean (Mauritius, Reunion), Hawaiian Archipelago. Larvae supposed to be of this species have been reported from the Philippines, the Gilbert Islands and Tahiti (Fig. 208).



(after Miers, 1882) **Fig. 207**



☆ larval records (supposedly of this species)

Fig. 208

Habitat and Biology : Depth range from 30 to 200 m. The species seems to prefer rocky or coral substrates.

Size : Maximum total body length 16 cm, carapace length 6 cm; average carapace length 4 to 5 cm.

Interest to Fisheries : The species is not actively fished for. Experimental fishing with lobster pots and trammel nets near Reunion resulted in small catches. Its small size, apparent scarcity and habitat (rough bottom and relatively great depth) make it an unlikely subject for a fishery.

Local Names : USA: Long-handed spiny lobster, Ula (Hawaii).

Literature : Fischer & Bianchi (eds), 1984:vol 5.