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CRUSTACEA ISOPODA COLLECTED DURING THE OC/S "ALMIRANTE SALDANHA" CRUISES IN SOUTHERN SOUTH AMERICA. II. ADDITIONS TO THE SPECIES OF *SEROLIS* (FLABELLIFERA, SEROLIDAE)

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SYNOPSIS

This paper reports on part of the species of *Serolis* Leach, 1818 (Crustacea, Flabellifera, Serolidae) collected from benthic stations performed during cruises of the Brazilian Navy Oc/S "Almirante Saldanha" along southern South America. The species studied are *Serolis schythei* Lütken, 1858, *Serolis polaris* Richardson, 1911, *Serolis foresti* Bastida & Torti, 1970, *Serolis uaperta* Moreira, 1971, *Serolis exigua* Nordenstam, 1933 and *Serolis elliptica* Sheppard, 1933. New localities of occurrence are reported, as well as it is given a complete synonymy for each species treated, and for *Serolis schythei* and *Serolis exigua* also its main distinctive characteristics.

INTRODUCTION

The present paper reports on the species of the marine isopod genus *Serolis* Leach, 1818, collected from benthic stations performed during cruises of the Brazilian Navy Oc/S "Almirante Saldanha" along southern South America. The species reported are: *S. schythei* Lütken, 1858, *S. polaris* Richardson, 1911, *S. foresti* Bastida & Torti, 1970, *S. uaperta* Moreira, 1971, *S. exigua* Nordenstam, 1933 and *S. elliptica* Sheppard, 1933. The position and details of the stations are given in List of Stations and Species Present.

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This paper is the second dealing with species of *Serolis* of a series to be published on species of marine isopods, available to the author for study, collected on the Oc/S "Almirante Saldanha" cruises.

Serolis schythei Lütken, 1858
(Fig. 1)

Serolis Schythei Lütken, 1858, p. 99-102, pl. 1A (figs 12, 13); Grube, 1875, p. 209, 212, 213, 214, 220-225, pl. 5 (fig. 1), pl. 6 (fig. 1); Studer, 1879, p. 19, 20, 21, 31; 1884, p. 8, 9; Pfeffer, 1887, p. 57; Dollfus, 1891, p. F59-F61, pl. 8a (fig. 4); Porter, 1917, p. 99; Giambiagi, 1925, p. 11-12, pl. 2 (fig. 3).

Serolis schythei, Beddard, 1884*a*, p. 330, 332, 338, 340; 1884*b*, p. 3, 8, 13, 14, 15, 17, 21, 23, 29, 31, 32, 34, 35, 40-44, 59, 62, 80, pl. 2 (figs 5-13); 1885, p. 389, 390; Thomson & Chilton, 1886, p. 154; Hodgson, 1910, p. 4; Richardson, 1911, p. 398; Tattersall, 1921, p. 227; Nierstrasz, 1931, p. 223; Sheppard, 1933, p. 256-263, 265, 267, 270, 274, 277, 278, 285, 286-289, 291, 292, 319, 342, figs 2b, c, 4a, b, pl. 14 (fig. 1); 1957, p. 190; Hurley, 1961, p. 269, 285; Kussakin, 1967, p. 241, 333, 373, 375, table 1; Bastida & Torti, 1970, p. 64, 65, 70, 86-89, 90, 93, 96, 97, 98, 99, 101, figs 12, 14; Moreira, 1971*a*, p. 89, table 1; 1973, p. 111, 114, figs 1, 3D; 1974*d*, p. 131, 132, 133.

Serolis Scythei, Miers, 1881, p. 76.

Serolis (Serolis) schythei, Nordenstam, 1933, p. 12, 13, 16, 17, 24, 29, 30, 34, 36, 39, 41, 47, 50, 55-58, 59, figs 1b, i, 5c, d, 7h, 13a-e; Menzies, 1962, p. 18, 20, 22, 109-111, fig. 36D.

Serolis schytei, Mañe-Garzón, 1953, p. 1-5, pl. 1.

TYPE LOCALITY - Magallanes region (Lütken, 1858).

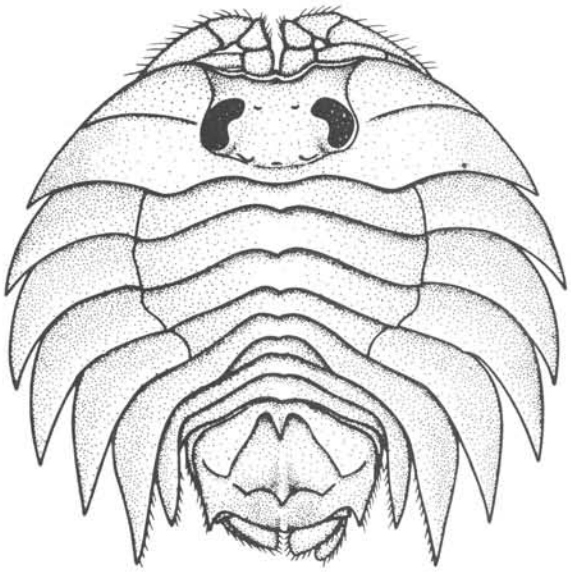


Fig. 1 - Serolis schythei Lütken, adult male 21.5 mm long.

MATERIAL EXAMINED - St. 2286: 1 juvenile. St. 2887: 1 ovigerous female 23.0 mm in length. St. 2869: 1 adult male 21.5 mm long.

MAIN DISTINCTIVE CHARACTERISTICS - Body enlarged, almost circular, slightly convex. Head with 2 small anterior tubercles and 3 flattened posterior prominences. Antenna 2 with flagellar process. Maxilliped, distal epipod partially fused to endite, maxillipedal palp with 4 articles. Pereonites and pleonites each with 1 flat mid-distal point extending backwards. Coxal plates of pereonites II-V marked off by dorsal sutures. Pereonite VI extending backwards far beyond both pleonites 2 and 3, reaching back to a level beyond pleotelson's apex. Pleon with 3 free pleonites. Pleotelson with 1 strong mid-anterior spiniform tubercle flanked at each side by 1 small tubercle; from each of these tubercles extends a diagonal carina delimiting on either side a flat triangular area ending in a rounded point; slightly beyond these points are placed 3 spiniform tubercles interconnected by an arcuate transverse ridge; another carina, fading posteriorly, is placed on each pleotelson side following its anterolateral margins. Uropods biramous; endopod truncate distally, with the outer distal angle quadrate, inner one rounded.

GEOGRAPHICAL DISTRIBUTION - Chile: Golfo de las Peñas; Seno Reloncavi, S of Isla Guar, W of Bajo Pucari; Golfo de Ancud, northern part, canal San

Antonio, inner part (Beddard, 1884*b*; Porter, 1917; Menzies, 1962). Argentina: Magallanes Strait, Tierra del Fuego, Patagonia, off rio de la Plata; Uruguay: south of Isla de Lobos (Lütken, 1858; Beddard, 1884*b*; Nordenstam, 1933; Sheppard, 1933; Mañe-Garzón, 1953; Bastida & Torti, 1970; Moreira, in press). Graham region (Nordenstam, 1933). Falkland Islands and South Georgia (Beddard, 1884*b*; Tattersall, 1921; Nordenstam, 1933). Present records: off Argentina. See Fig. 3.

REMARKS - This species was detailed described and figured by Beddard (1884*b*) and Moreira (in press). It is closely related to *S. polaris* Richardson, 1911, from which it can be distinguished, among other features, by the relative length between pereonite VI and pleonite 2, and shape of the endopod of the uropods. In addition, the mid-distal points on each pereonite and pleonite are flattened, whilst those in *S. polaris* are spiniform and obliquely placed, especially that on pereonite IV.

The specimens examined show a ground color (in alcohol) pale yellowish, head and middle of pereon reddish, with many small reddish-brown chromatophores scattered on dorsum of body, antenna 1 and 2, and uropods, similarly as pictured by Sheppard (1933, pl. 14, fig. 1). The eyes are prominent and deep black. The appendages are yellowish.

Adult males may be distinguished from adult females by its smaller and broader body. There is, however, no secondary sexual dimorphism in the number of flagellar articles of both antenna 1 and 2, as shown below:

	males	females
Antenna 1	25	23-24 articles
Antenna 2	18-19	18 articles

The species seems very common, abundant and widely distributed on the Patagonian shelf (Bastida & Torti, 1970; Moreira, in press). Certainly it is due to this abundance that *S. schythei* is predate by a large number of fishes, as *Genypterus blacodes*, *Mustelus schimitti*, *Notorhynchus pectorosus* and probably by *Merluccius hubbsi* (Bastida & Torti, 1970).

Serolis polaris Richardson, 1911

Serolis polaris Richardson, 1911, p. 396-398, fig. 1; Tattersall, 1921, p. 227; Nierstrasz, 1931, p. 223; Sheppard, 1933, p. 256, 265, 278, 286, 290-292, 319, fig. 4c-f, pl. 14 (fig. 2); Mañe-Garzón, 1953, p. 5; Kussakin, 1967, p. 333, table 1; Bastida & Torti, 1967, p. 31-40; 1970, p. 66, 70, 84-86, 90, 93, 99, 101, figs 11, 14; Moreira, 1971*a*, p. 86, 87-90, 101, 102, pls 1-4, table 1; 1971*b*, p. 390; 1973, p. 109-119, table 1; 1974*a*, p. 1-4, pl. 1 (fig. 1); 1974*d*, p. 129-134, figs 35-52.

Serolis (Serolis) polaris, Nordenstam, 1933, p. 48, 50, 58-59.

TYPE LOCALITY - South Sandwich Islands (Richardson, 1911).

MATERIAL EXAMINED - St. 2888: 2 juveniles.

GEOGRAPHICAL DISTRIBUTION - South Sandwich Islands (Richardson, 1911). Argentina (Nordenstam, 1933; Bastida & Torti, 1967; 1970). Uruguay (Bastida & Torti, 1970; Moreira, 1976). Brazil (Bastida & Torti, 1970; Moreira, 1971*a*, *b*; 1973; 1974*a*, *d*; 1976). Present records: off Argentina. See Fig. 3.

REMARKS - Bastida & Torti (1967; 1970) and Moreira (1971*a*; 1974*d*; 1976) give informations on the distinctive characteristics of the species and details on its geographical distribution. As pointed out before in this paper, *S. polaris* is closely related to, but easily distinguished from, *S. schythei* Lütken, 1858.

Serolis foresti Bastida & Torti, 1970

Serolis foresti Bastida & Torti, 1970, p. 68, 70-75, 99, 101, figs 2-4, 14; Moreira, 1974*b*, p. 90-94, figs 1-39; 1974*d*, p. 128, 133, 134.

TYPE LOCALITY - Off Argentina, Lat. 38°25'S, Long. 56°14'W (Bastida & Torti, 1970).

MATERIAL EXAMINED - St. 2868: 1 ovigerous female 7.1 mm long; 1 damaged female with buds of oostegites. St. 2286: 2 ovigerous females, one of which damaged, 7.0 and 6.9 mm long; 1 fragment of the fore half of the body of a juvenile.

GEOGRAPHICAL DISTRIBUTION - Argentina (Bastida & Torti, 1970) Uruguay (Moreira, 1976). Brazil (Bastida & Torti, 1970; Moreira, 1974*b*, *d*; 1976). Present records: Off Argentina. See Fig. 4.

REMARKS - Previous accounts give details on the morphology, pattern of carinae, color and geographical distribution of the species (Bastida & Torti, 1970; Moreira, 1974*b*, *d*; 1976). It is easily distinguished from the remainder species of the genus by the shape of the pleotelson and its pattern of ridges.

It seems interesting to pointing out the characteristic position of the pleon in the studied (preserved) specimens, which is placed vertically forming a 90° angle in relation to the rest of the body. Properly watched, this character greatly helps in sorting out this species from among other serolids.

The depth previously recorded for *S. foresti* ranges from 40 to 85 m. Present records are from 51 and 95 m, increasing slightly the depth limit of occurrence of the species.

Serolis uaperta Moreira, 1971

Serolis uaperta Moreira, 1971*a*, p. 86, 90-92, 101, 102, pls 5-8, table 2; Moreira, 1971*b*, p. 390; 1974*d*, p. 127, 128, 129.

TYPE LOCALITY - Brazil, State of São Paulo, Ilha Anchieta, off Ponta do Catimbau to W, about Lat. 23°32'S, Long. 45°02'W (Moreira, 1971*a*).

MATERIAL EXAMINED - St. 2868: 3 ovigerous females 4.1, 4.2 and 4.3 mm long; 1 female with developing oostegites 3.8 mm; 6 juveniles. St. 2888: 4 ovigerous females 4.1, 4.4 (2) and 4.5 mm long; 1 female with developing

oostegites 3.1 mm; 1 adult male 4.2 mm; 1 young male 3.9 mm with pereopod II thick and strong, but not yet shaped as that of the adult.

GEOGRAPHICAL DISTRIBUTION - Brazil and Uruguay (Moreira, 1971*a*; 1976). Present records: off Argentina. See Fig. 4.

REMARKS - The studied males and females agree with previous descriptions and informations on the species (Moreira, 1971*a*; 1976). The males are broader than females, and show the mid-distal spiniform tubercles on the head, pereonites and pleonites more developed. In the females they are usually absent or slightly marked. The spiniform tubercle posteriorly on the head is always the most developed of all them. The pattern of ridges on the dorsum of the pleotelson is as described for the holotype (Moreira, 1971*a*).

Serolis uaperta is for the first time reported from off Argentina. Previously it was recorded from the continental shelf of southern Brazil and Uruguay (Moreira, 1971*a*; 1976). The Lat. 37°56'S, Long. 57°07'W (St. 2888) is its present southernmost limit of occurrence. The depth range recorded for the species varies from 19 to 72 m.

Serolis exigua Nordenstam, 1933

(Fig. 2)

Serolis exigua Nordenstam, 1933, p. 16, 19, 21, 24, 27, 29, 31, 36, 37, 39, 45, 46, 47, 48, 51, 70-75, figs 4a-c, 6e, 17, 18, pl. 1 (fig. 2); Sheppard, 1933, p. 256, 257, 259-263, 265, 270, 274, 277, 279, 304-308, 310, 342, 343, figs 2a, f, 9, 10; 1957, p. 190, 197; Kussakin, 1967, p. 334, table 1; Bastida & Torti, 1967, p. 581; 1969, p. 38, 39; 1970, p. 67, 68, 98, 99, 101, fig. 14; Moreira, 1971*a*, p. 91, 92, table 2; 1974*d*, p. 122-124, 127, 128, 129, figs 1-8.

TYPE LOCALITY - Falkland Islands, Berkeley Sound, Lat. 51°35'S, Long. 57°56'W (Nordenstam, 1933).

MATERIAL EXAMINED - St. 2886: 1 ovigerous female 7.0 mm long.

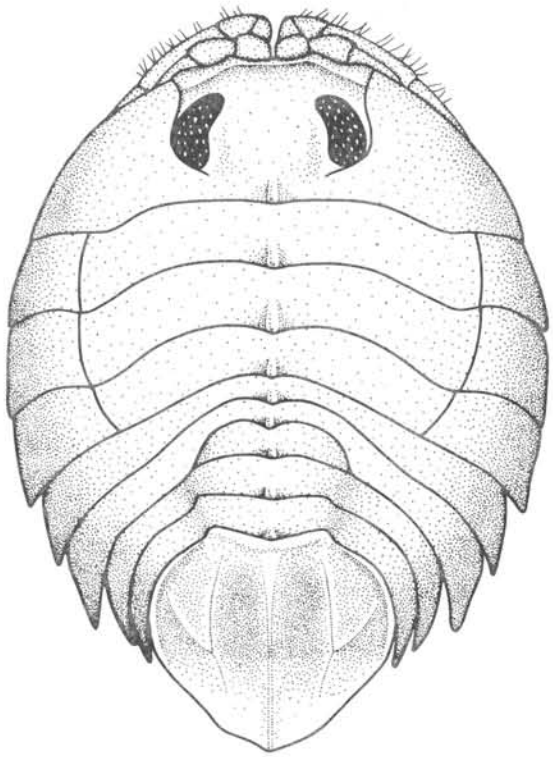


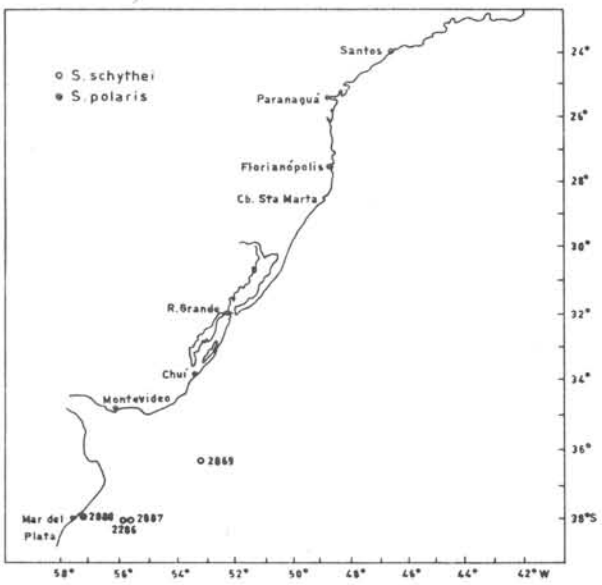
Fig. 2 - Serolis exigua Nordenstam, ovigerous female 6.5 mm long (from Moreira, 1974*d*).

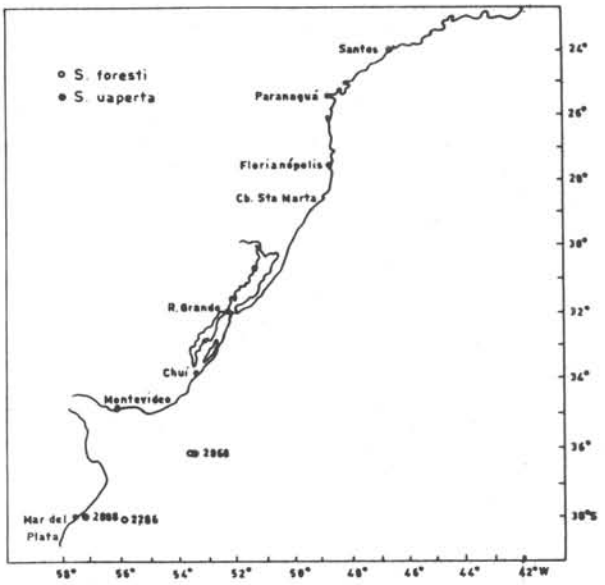
MAIN DISTINCTIVE CHARACTERISTICS - Body broad, well convex. Head with a mid-distal tubercle, which is spiniform and much larger in the male. Antenna 2 with flagellar process. Maxilliped, distal epipod fused to endite; palp with 3 articles. Pereonites and pleonites with a median point on distal margin. Coxal plates marked off on pereonites II-IV by dorsal sutures. Pereonite VI, in the male extending posteriorly to a level slightly beyond pleonite 2 but not beyond pleonite 3, while in the female it extends well forwardly to both pleonites 2 and 3. Pleon with 3 free pleonites. Pleotelson with a well defined mid-longitudinal carina disrupted about middle level; on either side 2 well marked carinae joining posteriorly in such a manner that confine a pronouncing triangular area; from the apex of these triangular areas 1 carina arises fading posteriorly; another carina is present very laterally, following the outline of the anterolateral margins; apex of pleotelson pointed-rounded, distal margin on either side of apex obliquely truncate, especially in the female. Uropod biramous.

GEOGRAPHICAL DISTRIBUTION - Chile: off Isla Guafo, Golfo Corcovado, Lat. 43°25'S, Long. 75°05'W, and Lat. 43°30'S, Long. 74°55'W (Moreira, in press).

Off Falkland Islands (Nordenstam, 1933; Sheppard, 1933; Moreira, in press). Argentina: Tierra del Fuego, Patagonia (Sheppard, 1933; Moreira, in press). Uruguay: Lat. 34°25'S, Long. 52°19'W (Moreira, in press). Brazil: Rio Grande do Sul, off Albardão, Lat. 33°38'S, Long. 51°04'W (Moreira, 1974*d*). Present record: off Argentina. See Fig. 5.

REMARKS - The single examined ovigerous female does not shows any remarkable feature justifying detailed comments. The body is well calcified and arched. The eyes are prominent and deep black. The carinae on the





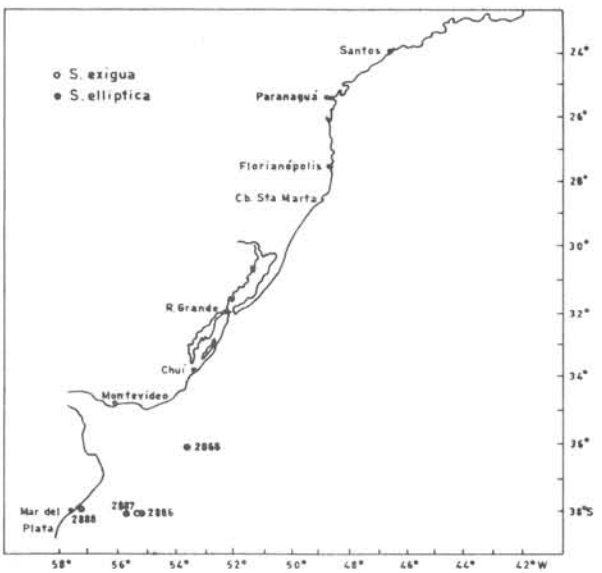


Fig. 3 - Distribution of *Serolis schythei* Lütken, and *Serolis polaris* Richardson. Records based on specimens studied.

Fig. 4 - Distribution of *Serolis foresti* Bastida & Torti, and *Serolis uaperta* Moreira. Records based on specimens studied.

Fig. 5 - Distribution of *Serolis exigua* Nordenstam, and *Serolis elliptica* Sheppard. Records based on specimens studied.

pleotelson are pronouncedly marked, and their arrangment agree perfectly with published accounts.

The color (in alcohol) is dusty yellowish with the middle of head, pereonites and pleonites slightly pinkish. Large number of small retracted brownish chromatophores are placed on the lateral portions of the pereon and pleonites, uropods and concentrated in transverse row on the peduncular articles of the antennae 1 and 2, both on middle and distally of each article. The appendages are light yellowish, with few scattered brownish chromatophores.

The marsupium is very prominent, bearing orange-yellowish eggs partially visible through the translucent oostegites.

The species is very easily distinguished from the remainder ones of the genus, especially by the characteristic pattern of carinae on the dorsum of the pleotelson.

As pointed out previously, males may be distinguished from females by its smaller size, broader body and by the larger development of the posterior spiniform tubercle on the head.

The available data on the occurrence of *S. exigua* indicate that the species seems very common in the area where it occurs, sometimes in large number. It seems fairly abundant on the Argentinian continental shelf (Patagonia and Tierra del Fuego) and off Falkland Islands. The occurrence of the species off Albardão, Rio Grande do Sul, Brazil (Moreira, 1974*d*) is so far its northernmost reported occurrence.

Serolis elliptica Sheppard, 1933

Serolis elliptica Sheppard, 1933, p. 256, 257, 261, 265, 270, 279, 301-304, figs 7, 8; Bastida & Torti, 1970, p. 67, 68, 99, 101, fig. 14; Moreira, 1971*a*, p. 100, table 5; 1974*c*, p. 109-110, 111, 112, figs 22-30.

TYPE LOCALITY - South Atlantic, Lat. 52°00'S, Long. 62°40'W (Moreira, in press).

MATERIAL EXAMINED - St. 2868: 1 female with developing oostegites 2.6 mm long; 1 adult male 5.0 mm; 1 young male; 2 juveniles. St. 2886: 1 female bearing embryos 4.0 mm long; 4 females with developing oostegites 2.5, 2.6 and 2.7 (2) mm; 2 adult males 4.0 and 4.5 mm; 4 juveniles. St. 2887: 1 female with developing oostegites 2.6 mm long; 2 adult males 4.1 and 4.2 mm; 1 young male. St. 2888: 1 adult male 4.7 mm long.

GEOGRAPHICAL DISTRIBUTION - Falkland Islands, South Patagonia, Uruguay and Brazil (Sheppard, 1933; Moreira, 1974*c*; 1976; in press). Present records: off Argentina. See Fig. 5.

REMARKS - A very characteristic species, easily distinguished from the remainder ones of the genus by the elliptical body and rounded apex of the pleotelson. Previous descriptions and observations (Sheppard, 1933; Moreira, 1974*c*; 1976; in press) have already pointed out all its important morphological features. *S. elliptica* is recorded from depths ranging from 10 to 248 m.

RESUMO

O presente trabalho versa sobre as espécies de isópodes do gênero *Serolis* Leach, 1818 (Crustacea, Flabellifera, Serolidae) coletadas em estações bênticas realizadas ao largo da América do Sul pelo N/Oc "Almirante Saldanha". São estudadas as espécies *S. schythei* Lütken, 1858, *S. polaris* Richardson, 1911, *S. foresti* Bastida & Torti, 1970, *S. uaperta* Moreira, 1971, *S. exigua* Nordenstam, 1933 and *S. elliptica* Sheppard, 1933. Novas localidades de ocorrência são assinaladas, e para algumas espécies as distribuições geográfica e/ou batimétrica são ampliadas. Completa sinonímia é dada para todas as espécies, e para *S. schythei* e *S. exigua* suas principais características distintivas.

ACKNOWLEDGEMENT

The author is thankfull to the Diretoria de Hidrografia e Navegação (DHN) of the Brazilian Navy for providing the specimens studied.

LIST OF STATIONS AND SPECIES PRESENT

St. 2286. November 1969. 38°05'S, 55°48'W. 95 m depth. 06.70°C. 33.82 S°/oo. Rectangular dredge.

S. schythei
S. foresti

St. 2868. February 1972. 36°23'S, 53°32'W. 51 m depth. 17.01°C. 33.62 S°/oo. 4.80 ml/l O_2. Rectangular dredge.

S. foresti
S. uaperta
S. elliptica

St. 2869. February 1972. 36°23'S, 53°13'W. 400-430 m depth. 10.36°C. 34.5 S°/oo. Rectangular dredge.

S. schythei

St. 2886. February 1972. 38°06'S, 55°13'W. 480-440 m depth. 04.79°C. 33.15 S°/oo. 6.83 ml/l O_2. Rectangular dredge.

S. exigua
S. elliptica

St. 2887. February 1972. 38°06'S, 55°38'W. 81 m depth. 06.91°C. 33.60 S°/oo. 4.79 ml/l O_2. Rectangular dredge.

S. schythei
S. elliptica

St. 2888. February 1972. 37°56'S, 57°07'W. 31 m depth. 19.60°C. 33.69 S°/oo. 5.32 ml/l O_2. Rectangular dredge.

S. polaris
S. uaperta
S. elliptica

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