# THE BRACHYURA (CRUSTACEA: DECAPODA) COLLECTED BY THE GEDIP PROJECT BETWEEN TORRES, RIO GRANDE DO SUL (BRAZIL) AND MALDONADO (URUGUAY)

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**ABSTRACT**

An agreement between the Executive Group for Industrial Fisheries Development (GEDIP) and the Oceanographic Institute of the University of São Paulo (IOUSP), gave rise to an extensive project. This extensive project was the GEDIP Project, carried out off the coast of the state of Rio Grande do Sul, but with several stations as far south as Maldonado in Uruguay. Of the 442 stations visited by the R/V "Prof. W. Besnard" during the project, brachyuran crabs occurred at 219 and 57 species were collected, members of 45 genera and 23 families. For each species, the geographical distribution, habitat, and a list of the stations where it occurred are provided. In addition, a table listing oceanographic data and the species occurring at each station is given.

**KEY WORDS**: Brachyura, southern Brazil, uruguayan waters, oceanographic data.

**RESUMO**

**Os Brachyura (Crustacea: Decapoda) coletados pelo projeto GEDIP entre Torres, Rio Grande do Sul (Brasil) e Maldonado (Uruguai)**

Um convênio entre o Grupo Executivo do Desenvolvimento da Indústria da Pesca (GEDIP) e o Instituto Oceanográfico da Universidade de São Paulo (IOUSP), deu origem a um amplo projeto denominado Projeto GEDIP, a ser desenvolvido na costa do Rio Grande do Sul, mas com várias estações até Maldonado, no Uruguai. Do total de 442 estações efetuadas pelo N.Oc. "Prof. W. Besnard" durante o projeto, em 219 ocorreram Brachyura, sendo coletadas 57 espécies, distribuídas em 45 gêneros e 23 famílias. Para cada espécie são fornecidas informações sobre: distribuição geográfica, habitat e lista das estações em que ocorreram. É fornecida, também, uma tabela com os dados oceanográficos de cada estação e com as espécies que ocorreram em cada uma delas.

**PALAVRAS CHAVE**: Brachyura, Sul do Brasil, costa uruguaia, dados oceanográficos.

## INTRODUCTION

The Executive Group for Industrial Fisheries Development (GEDIP) of the state of Rio Grande do Sul, and the Oceanographic Institute of the University of São Paulo (IOUSP) united in an extensive research project.

The data initially published from the study characterized the regional ecological aspects: temperature, salinity, bottom types, and ocean circulation (Luedmann 1971; Magliocca 1971; Miranda 1971; Miranda *et al.* 1973). However, the biodiversity of the region was reported only for certain groups and in brief reports about the project, by specialists of the USP Oceanographic Institute, such as: Amphipoda (Wakabara 1973), Isopoda (Moreira,1973), commercially valuable shrimps (Iwai 1973), Zooplankton (Navas-Pereira 1973), Polychaete annelids (Nonato 1973), Porifera (Ribeiro *et al.* 1973), Echinodermata (Tommasi *et al*. 1973b), Pelecypoda and Gastropoda (Tommasi & Rios 1973) and fishes (Vazzoler *et al.* 1973; Sadowsky 1973; Benvegnú 1973; Vazzoler 1975).

The GEDIP Project continued from 1968 to 1972, with a total of 442 stations sampled, and was divided into two phases. The first phase (GEDIP I), with 6 cruises and 226 stations, took place between 24 April 1968 and 20 March 1969, with collections between Torres, Rio Grande do Sul (29º 21´S: 49º 44´W) and Maldonado, Uruguay (34º 52´S: 54º 55´W), and a few stations beyond this limit. The second phase (GEDIP II), with 4 cruises and 216 stations, took place during the year 1972 (from 16 January to 3 November), when collections were made between 29º 00´S and 36º 02´S (Miranda *et al.* 1973; Furtado 1973), with 54 stations visited off the Uruguayan coast.

The objective of this work was generating biotic and abiotic data, in addition to studying the biodiversity of the southern coast of Brazil.

## MATERIAL AND METHODS

In general, the stations were limited to the continental shelf, although some extended to the upper slope (Melo-Filho & Melo 2001). The ship used in the collections was the R/V "Prof. W. Besnard." The material of Brachyura obtained during the project was deposited in the Carcinological Collection of the Museum of Zoology of the University of São Paulo (MZUSP).

For each species, the following data are reported: geographical distribution, habitat and material examined. Information on the collection stations (coordinates, date, depth, temperature, salinity and the species that occurred at each station) is given in Table I. Information on the gear used in the collections was provided by Tommasi *et al*. (1973a), and on the bottom types by Furtado (1973).

The classification of the species, genera and families is based on the work recently published of Ng *et al.* (2008).

**RESULTS**

The Brachyura was the most species-rich group of benthic macro-crustaceans collected on the continental shelf of Rio Grande do Sul during the project, principally between the 50 and100 meter isobaths (Tommasi *et al*. 1973a). Of the total of 442 stations visited during the entire project, members of the Brachyura occurred at 219 (49.5%), at 134 stations of the first phase and 85 stations of the second. In total, 57 species of Brachyura, members of 45 genera and 23 families were collected. The stations with the most species were 1646 (9 species), and 569 and 1883 (7 species each). The species collected at the most stations were: *Libinia spinosa* (69 stations), *Chasmocarcinus typicus* and *Hepatus pudibundus* (27 stations).

## TAXONOMIC ACCOUNT

### Superfamily Dromioidea De Haan, 1833

#### FAMILY DROMIIDAE De Haan, 1833

*Moreiradromia antillensis* (Stimpson, 1858)

Distribution: Western Atlantic – North Carolina, Bermuda, Florida, Gulf of Mexico, Antilles, Venezuela, Guiana, Suriname, French Guiana and Brazil (from Amapá to Rio Grande do Sul). Central Atlantic – Saint Helena Island.

Habitat: Hard substrates such as corals, broken shells, and rocks. Intertidal to 330 m. Generally covers the carapace with sponges or ascidians.

Material examined: Stations 313, 458, 552.

### Superfamily Homoloidea De Haan, 1839

#### FAMILY HOMOLIDAE De Haan, 1839

*Homola minima* Guinot & Richer de Forges, 1995

Distribution: Western Atlantic – From Virginia to Florida, Gulf of Mexico, Central America, Antilles, northern South America, and Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Sand, shell, and coral bottoms; occasionally on muddy substrates. Occurs at depths of 55 to 690 m.

Material examined: Stations 378, 396, 569, 1872, 1873.

#### FAMILY LATREILLIIDAE Stimpson, 1858

*Latreillia williamsi* Melo, 1990

Distribution: Western Atlantic – Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Usually on sand, gravel, mud or shell substrates. Depths from 130 to 290 m.

Material examined: Stations 367, 368, 396 (holotype-MZUSP-3295), 401, 411, 412, 438, 539, 541, 547, 554, 568, 569, 576, 1646, 1648, 1656, 1740, 1742, 1856, 1883.

## Superfamily Cyclodorippoidea Ortmann, 1892

### FAMILY CYCLODORIPPIDAE Ortmann, 1892

*Deilocerus perpusillus* (Rathbun, 1901)

Distribution: Western Atlantic – North Carolina to Georgia, Bahamas, Gulf of Mexico, Antilles, and Brazil (from Amapá to Rio Grande do Sul).

Habitat: On gravel, sand and mud substrates. At depths ranging from 30 to 180 meters. Sometimes carry hydrozoans on the carapace.

Material examined: Station 1646.

### FAMILY CYMONOMIDAE Bouvier, 1898

*Cymonomus quadratus* A. Milne-Edwards, 1880

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles and Brazil (Amapá and from Rio de Janeiro to Rio Grande do Sul).

Habitat: Sand and mud bottoms. From 190 to 930 meters. Off the Brazilian coast, between 200 and 600 m.

Material examined: Station 1646.

## Superfamily Calappoidea De Haan, 1833

### FAMILY CALAPPIDAE De Haan, 1833

*Acanthocarpus alexandri* Stimpson, 1871

Distribution: Western Atlantic – Massachusetts, North Carolina to Florida, Gulf of Mexico, Antilles and Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Principally on sand and mud bottoms. Between 70 and 480 m.

Material examined: Stations 315, 465, 473, 561, 1664, 1680, 1691, 1696, 1697, 1718, 1758, 1872, 1881, 1909.

## Superfamily Aethroidea Dana, 1851

### FAMILY AETHRIDAE Dana, 1851

*Hepatus pudibundus* (Herbst, 1785)

Distribution: Western Atlantic – Georgia, Gulf of Mexico, Antilles, Venezuela, Guianas and Brazil (from Amapá to Rio Grande do Sul). Eastern Atlantic – From Guinea to South Africa.

Habitat: Principally mud, sand and broken-shell bottoms. Shallow waters to 160 m. Sometimes carries anemones and barnacles on its carapace.

Material examined: Stations 364, 395, 396, 397, 402-403, 407, 409, 471, 538, 544, 550, 564, 573, 577, 579, 583, 590, 592, 1643, 1660, 1688, 1699, 1725, 1732, 1851, 1918.

*Osachila antillensis* Rathbun, 1916

Distribution: Western Atlantic – Bermuda, Gulf of Mexico, Antilles and Brazil (from Amapá to Rio Grande do Sul).

Habitat: From 80 to 300 m. Sand, shell and coral bottoms and hard substrates.

Material examined: Station 1883.

*Osachila tuberosa* Stimpson, 1871

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles, Venezuela and Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Coral and shell bottoms, occasionally on sand. Between 40 and 90 m., most common at depths of about 40m.

Material examined: Stations 411, 569, 1646, 1740.

Superfamily Leucosioidea Samouelle, 1819

FAMILY LEUCOSIIDAE Samouelle, 1819

*Myropsis quinquespinosa* Stimpson, 1871

Distribution: Western Atlantic – Massachusetts, North Carolina, Florida, Gulf of Mexico, Antilles, Colombia, Venezuela, Suriname, Brazil (from Rio de Janeiro to Rio Grande do Sul), Uruguay and Argentina.

Habitat: Mud, sand and shell bottoms. Between 90 and 330 meters.

Material examined: Stations 330, 374, 460, 1656, 1680, 1758, 1848, 1855, 1856, 1872, 1891, 1907.

*Persephona mediterranea* (Herbst, 1794)

Distribution: Western Atlantic – New Jersey, Carolinas, Florida, Gulf of Mexico, Antilles, Venezuela, Suriname, French Guiana, Brazil (from Amapá to Rio Grande do Sul) and Uruguay.

Habitat: Sand, shell, and coral bottoms. Intertidal to 60 m.

Material examined: Stations 315, 383, 397, 402, 403, 460, 464, 470, 538, 544, 557, 579, 582, 592, 1688, 1699, 1715.

Superfamily Majoidea Samouelle, 1819

FAMILY INACHIDAE MacLeay, 1838

*Podochela atlantica* (Coelho, 1997)

Distribution: Western Atlantic – Brazil (Santa Catarina and Rio Grande do Sul) and Uruguay.

Habitat: Between 130 and 160 m. On sand, mud-sand and organogenic bottoms.

Material examined: Stations 547 (paratype – MZUSP-3522), 554 (holotype MZUSP-3533) 576 (paratype – MZUSP-5975).

*Anomalothir furcillatus* (Stimpson, 1871)

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles and Brazil (Rio Grande do Sul).

Habitat: Mud, sand, shell, rock and coral bottoms. Between 50 and 690 meters. Most common at depths greater than 180 meters.

Material examined: Stations 437, 458, 1856.

*Eurypodius latreillii* Guérin, 1825

Distribution: Western Atlantic – Brazil (from Rio de Janeiro to Rio Grande do Sul) and Argentina (including Patagonia), Falkland Islands and the Straits of Magellan. Eastern Pacific – Peru and Chile.

Habitat: From shallow water to 90 meters, dock pilings and rock bottoms. Individuals may carry algae, sponges and bryozoans. Some specimens were collected at depths over 100 meters.

Material examined: Station 1873.

*Stenorhynchus seticornis* (Herbst, 1788)

Distribution: Western Atlantic – Bermuda, North Carolina, Florida, Gulf of Mexico, Antilles, Colombia, Venezuela, Guianas, Brazil (from Amapá to Rio Grande do Sul), Uruguay and Argentina.

Habitat: Calcareous-algae, corals, rock, shell and sand bottoms. Occurs together with sponges. Movies slowly, in hops. Does not camouflage itself; is sometimes parasitized by sacculinids. From the intertidal zone to great depths.

Material examined: Station 586.

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FAMILY INACHOIDIDAE Dana, 1851

*Collodes rostratus* A. Milne-Edwards, 1879

Distribution: Western Atlantic – Brazil (from Rio de Janeiro to Rio Grande do Sul), Uruguay and Argentina (including Patagonia).

Habitat: Preferentially on sand, shell, and mud bottoms. Between 10 and 70 meters.

Material examined: Stations 405, 409, 455, 1656, 1868.

*Euprognatha rastellifera* Stimpson, 1871

Distribution: Western Atlantic – Massachusetts to Florida, Gulf of Mexico, Antilles, Guianas, Brazil (from Amapá to Rio Grande do Sul) and Uruguay.

Habitat: Sand, coral, and shell bottoms. Shallow waters to considerable depths (710 m).

Material examined: Stations 465, 1646, 1856, 1883.

*Leurocyclus tuberculosus* (H. Milne Edwards & Lucas, 1842)

Distribution: Western Atlantic – Brazil (from Rio de Janeiro to Rio Grande do Sul), Uruguay and Argentina (including Patagonia). Eastern Pacific – Chile.

Habitat: Preferentially on sand, shell, and mud bottoms. Between 10 and 70 m.

Material examined: Stations 275, 277, 279, 280, 281, 289, 291, 325, 328, 406, 410, 413, 434, 460, 468, 471, 538, 543, 566, 571, 582, 590, 592, 1644, 1646, 1659, 1688, 1745, 1868, 1917, 1923.

FAMILY MAJIDAE Samouelle, 1819

*Microphrys bicornutus* (Latreille, 1825)

Distribution: Western Atlantic – North Carolina to southern Florida, Bermuda, Gulf of Mexico, Antilles, Central America, Venezuela and Brazil (Fernando de Noronha, and from Maranhão to Rio Grande do Sul).

Habitat: Very common on coral reefs and in almost all shallow marine habitats. Almost always covered with anemones, algae or sponges.

Material examined: Station 550.

*Mithrax besnardi* Melo, 1990

Distribution: Western Atlantic – Brazil (Rio Grande do Sul).

Habitat: The only existing specimens were on a mud bottom and a depth of 2,100 meters.

Material examined: Station 1872 (Holotype –MZUSP-4565) (Paratypes – MZUSP-6242 and MZUSP-7519)..

*Stenocionops furcatus* (Olivier, 1791)

Distribution: Western Atlantic – Georgia, Florida, Gulf of Mexico, Antilles, Colombia and Brazil (from Ceará to Rio Grande do Sul).

Habitat: Sand, rock, mud and coral bottoms, and on wharf pilings. Transports different species of anemones and sponges on its carapace and appendages. From intertidal zone to 180 m.

Material examined: Stations 280, 405, 412, 449, 554.

*Stenocionops spinosissimus* (De Saussure, 1857)

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles and Brazil (Fernando de Noronha and from Rio Grande do Norte to Rio Grande do Sul).

Habitat: This species occurs at depths of 40 to 480 m. On mud and sand bottoms.

Material examined: Station 1856.

FAMILY EPIALTIDAE MacLeay, 1838

*Apiomithrax violaceus* (A. Milne-Edwards, 1868)

Distribution: Western Atlantic – Brazil (from Paraiba to Rio Grande do Sul). Eastern Atlantic – Cape Verde islands and from Cabo Branco to Angola. Mid-Atlantic – Ascension Island.

Habitat: Sand and mud bottoms. From shallow waters to 50 m.

Material examined: Station 586.

*Lepteces ornatus* Rathbun, 1893

Distribution: Western Atlantic – Yucatan, Mexico and Brazil (Rio Grande do Sul).

Habitat: Between 150 to 250 m.

Material examined: Station 1881.

*Libidoclaea granaria* H. Milne Edwards & Lucas, 1842

Distribution: Western Atlantic – Brazil (Rio Grande do Sul), and Argentina (including Patagonia). Eastern Pacific – Chile.

Habitat: This species occurs at depths greater than 70 meters and is not collected in coastal waters.

Material examined: Stations 1675, 1918.

*Libinia ferreirae* Brito Capello, 1871

Distribution: Western Atlantic – Venezuela and Brazil (from Pará to Rio Grande do Sul).

Habitat: Preferentially on mud bottoms. Intertidal to 35 m.

Material examined: Station 1917.

*Libinia spinosa* H. Milne Edwards, 1834

Distribution: Western Atlantic – Brazil (from Espírito Santo to Rio Grande do Sul), Uruguay and Argentina.

Habitat: Generally on mud bottoms. From shallow waters to 170 m.

Material examined: Stations: 275, 282, 289, 291, 299, 310, 324, 364, 365, 371, 397, 403, 405-409, 414, 425, 430, 431, 441, 447, 452, 455, 460, 463, 467, 468, 470, 471, 543, 549, 550, 558, 564, 577, 582, 583, 586, 1643, 1644, 1651, 1652, 1660, 1662, 1668, 1670, 1675, 1679, 1686-1688, 1698, 1699, 1724, 1867, 1868, 1876, 1893, 1916, 1923, 1925, 1926, 1931, 1932, 1937, 1938, 1940.

*Pelia rotunda* A. Milne-Edwards, 1875

Distribution: Western Atlantic – Brazil (from Pará to Rio Grande do Sul), Uruguay and Argentina.

Habitat: Sand and calcareous-algae bottoms. Intertidal to 190 m.

Material examined: Station 1893.

*Rochinia gracilipes* A. Milne-Edwards, 1875

Distribution: Western Atlantic – Brazil (from Rio de Janeiro to Rio Grande do Sul), Uruguay, Argentina and Antarctica.

Habitat: Sand, gravel and shell bottoms. Sometimes among submersed vegetation. Between 15 and 175 m.

Material examined: Stations 405, 1868, 1874, 1884.

Superfamily Parthenopoidea MacLeay, 1838

FAMILY PARTHENOPIDAE MacLeay, 1838

*Heterocrypta lapidea* Rathbun, 1901

Distribution: Western Atlantic – Antilles and Brazil (from Pará to Rio Grande do Sul).

Habitat: Sand, mud and shell bottoms. Intertidal to 180 m.

Material examined: Stations 449, 1748, 1756.

*Mesorhoea sexspinosa* Stimpson, 1871

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles and Brazil (from Pará to Rio Grande do Sul).

Habitat: Mainly on sand and shell bottoms. Intertidal to 100 m.

Material examined: Stations 417, 425.

*Spinolambrus fraterculus* (Stimpson, 1871)

Distribution: Western Atlantic – From North Carolina to Florida, Gulf of Mexico, Antilles, Suriname, Brazil (from Amapá to Rio Grande do Sul), Uruguay and Argentina.

Habitat: Sand, shell, gravel, rock and coral bottoms. Shallow waters to 200 m.

Material examined: Stations 411, 579, 1646, 1883.

*Spinolambrus pourtalesii* (Stimpson, 1871)

Distribution: Western Atlantic – From Massachusetts to southern Florida, Gulf of Mexico, Antilles and Brazil (from Amapá to Rio Grande do Sul).

Habitat: Mud, sand, shell and gravel bottoms. Between 20 and 350 m.

Material examined: Stations 279, 412, 444, 568, 569, 588, 1662.

Superfamily Cancroidea Latreille, 1802

FAMILY ATELECYCLIDAE Ortmann, 1893

*Peltarion spinulosum* (White, 1843)

Distribution: Western Atlantic – Brazil (Rio Grande do Sul), Uruguay, and Argentina (including Patagonia). Eastern Pacific – Chile.

Habitat: Sand and mud bottoms. Found at shallow depths, but reaches 300 m.

Material examined: Stations 405, 1917-1919, 1921.

Superfamily Bellioidea Dana, 1852

FAMILY BELLIIDAE Dana, 1852

*Bellia picta* H. Milne Edwards, 1848

Distribution: Western Atlantic – Brazil (Rio Grande do Sul). Eastern Pacific – Peru and Chile.

Habitat: A very rare species. From study of its anatomy, some workers have concluded that it is a burrower and filter-feeder. The single specimen was collected at 116 m.

Material examined: Station 1730.

*Corystoides chilensis* Lucas, 1844

Distribution: Western Atlantic – Brazil (from Rio de Janeiro to Rio Grande do Sul), Uruguay and Argentina (including Patagonia). Eastern Pacific – Chile.

Habitat: Mud and sand bottoms. Lives almost completely buried in the substrate. At depths from 5 to 30 m.

Material examined: Stations 407, 409, 1644.

Superfamily Portunoidea Rafinesque, 1815

FAMILY PORTUNIDAE Rafinesque, 1815

*Arenaeus cribrarius* (Lamarck, 1818)

Distribution: Western Atlantic – Massachusetts to North Carolina, Bermuda, Florida, Gulf of Mexico, Antilles, Colombia, Venezuela, Brazil (from Ceará to Rio Grande do Sul), Uruguay and Argentina.

Habitat: Well adapted to live in beach sand. Found rarely in estuaries or inland ponds. Juveniles of this species were collected at 6-10 m., on sand and mud-sand sediments (Scelzo 2001).

Material examined: Stations 555, 565, 1671, 1725, 1853.

*Callinectes danae* Smith, 1869

Distribution: Western Atlantic – North Carolina, Bermuda, Florida, Gulf of Mexico, Antilles, Colombia, Venezuela, and Brazil (from Pará to Rio Grande do Sul).

Habitat: Occurs in brackish to hypersaline waters, in mangroves and muddy estuaries. Also on sandy beaches and in the open sea. Intertidal to 75 m.

Material examined: Station 416.

*Callinectes ornatus* Ordway, 1863

Distribution: Western Atlantic – Virginia, North Carolina to Florida, Gulf of Mexico, Antilles, Colombia, Venezuela, Guianas, and Brazil (from Amapá to Rio Grande do Sul).

Habitat: On sand and mud, and in less-saline waters. Intertidal to 75 m.

Material examined: Stations 557, 1917.

*Callinectes sapidus* Rathbun, 1896

Distribution: Western Atlantic – From Virginia to Florida, Gulf of Mexico, Antilles, Central America, Venezuela, Brazil (from Bahia to Rio Grande do Sul) and Argentina. Eastern Atlantic – North,

Mediterranean, Adriatic, and Black seas. Indo-Pacific – Japan.

Habitat: Intertidal zone to 90 m. In bays, estuaries and lagoons.

Material examined: Stations 545, 550, 551, 557, 565, 1661, 1662, 1669.

*Cronius ruber* (Lamarck, 1818)

Distribution: Western Atlantic – Virginia, North Carolina to southern Florida, Gulf of Mexico, Central America, Antilles, northern South America and Brazil (from Amapá to Rio Grande do Sul). Eastern Atlantic – From Mauritania to Angola, Cape Verde, Principe, São Tomé and Annobon islands. Eastern Pacific – From Baja California to Peru and Galapagos Islands.

Habitat: Sandy beaches, and rock and gravel areas. Shallow waters to 110 m.

Material examined: Station 459.

*Ovalipes trimaculatus* (De Haan, 1833)

Distribution: Western Atlantic – Brazil (from São Paulo to Rio Grande do Sul), Uruguay, Argentina (including Patagonia). Eastern Atlantic – South Africa. Eastern Pacific – Chile and Peru. Indo-Pacific.

Habitat: On sand bottoms, occasionally on mud and shell bottoms. Aggressive species, generally buries itself in the sand for defense.

Material examined: Stations 310, 325, 463, 468, 571, 583, 1643, 1644, 1646, 1650, 1659, 1670, 1687, 1699, 1700, 1867, 1868, 1916, 1917, 1923, 1924.

*Portunus spinicarpus* (Stimpson, 1871)

Distribution: Western Atlantic – North and South Carolina, Florida, Gulf of Mexico, Antilles, Colombia, Venezuela, Guianas and Brazil (from Amapá to Rio Grande do Sul).

Habitat: Shallow waters to 550 m. On sand, gravel, broken-shell, coral and mud bottoms.

Material examined: Stations 285, 290, 293, 296, 315, 330, 362, 363, 369, 378, 387, 399, 402, 405, 410, 413, 419, 425, 429, 436, 439, 442, 445, 448, 449, 452, 455, 457, 459, 460, 473, 539, 543, 569, 581, 592, 1664, 1667, 1696, 1703, 1712, 1722, 1723, 1758, 1859, 1891, 1907, 1940.

*Portunus spinimanus* Latreille, 1819

Distribution: Western Atlantic – From New Jersey to southern Florida, Bermuda, Gulf of Mexico, Antilles, Venezuela, Guianas and Brazil (from Pará to Rio Grande do Sul).

Habitat: Brackish water of channels and bays, on sand, gravel, broken-shell, and mud bottoms. From shallow waters to 90 m.

Material examined: Stations 577, 579, 582, 585, 590, 1688.

## Superfamíly Xanthoidea MacLeay, 1838

### FAMILY PANOPEIDAE Ortmann, 1893

*Tetraxanthus rathbunae* Chace, 1939

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles and Brazil (from Paraiba to Rio Grande do Sul).

Habitat: Mud, shell, coral, rock and sand bottoms. Between 100 and 500 m, but in Brazil has been collected at 20 meters.

Material examined: Station 1675.

*Cyrtoplax spinidentata* (Benedict, 1892)

Distribution: Western Atlantic – Antilles and Brazil (from Pernambuco to Rio Grande do Sul).

Habitat: Mud bottoms; occasionally on sand or among algae. Shallow waters to 150 m.

Material examined: Stations 288, 299, 320, 321, 328, 363

FAMÍLY XANTHIDAE MacLeay, 1838

*Speocarcinus carolinensis* Stimpson, 1859

Distribution: Western Atlantic – North Carolina to Florida, Gulf of Mexico, Antilles and Brazil (Amapá, São Paulo and Rio Grande do Sul).

Habitat: In burrows of *Squilla, Callianassa* and other crustaceans, and in mud bottoms. From intertidal zone to 150 m.

Material examined: Stations 413, 1662, 1868.

*Speocarcinus meloi* D`Incao & Gomes da Silva, 1991

Distribution: Western Atlantic – Brazil (Rio Grande do Sul).

Habitat: Sand and mud bottoms and depths between 50 and 160 m.

Material examined: Stations 313, 378 (Paratypes MZUSP-9578), 379 (Holotype MZUSP-9577), 413, 417, 421, 425, 427, 451, 1679, 1697, 1860, 1907.

Superfamily Goneplacoidea MacLeay, 1838

FAMILY CHASMOCARCINIDAE Serène, 1964

*Chasmocarcinus rathbuni* Bouvier, 1917

Distribution: Western Atlantic – Brazil (Rio Grande do Sul).

Habitat: Preference for mud bottoms. Between 30 and 220 m.

Material examined: Station 313.

*Chasmocarcinus typicus* Rathbun, 1898

Distribution: Western Atlantic – Antilles, northern South America, and Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Mud bottoms; occasionally on sand. From 25 to 200 m.

Material examined: Stations 293, 299, 305, 312, 374, 379, 402, 413, 419, 427, 432, 439, 459, 473, 559, 1656, 1666, 1675, 1679, 1691, 1696, 1697, 1706, 1712, 1718, 1723, 1758.

FAMILY EURYPLACIDAE Stimpson, 1871

*Frevillea hirsuta* (Borradaile, 1916)

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, and Brazil (from Amapá to Rio Grande do Sul).

Habitat: Prefers mud bottoms. Between 70 and 150 m.

Material examined: Stations 286, 413, 473, 588, 1883.

FAMILY PSEUDORHOMBILIDAE Alcock, 1900

*Pseudorhombila octodentata* Rathbun, 1906

Distribution: Western Atlantic – Antilles and Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Depths down to 200 m. Prefers mud bottoms.

Material examined: Stations 285, 286, 288, 316, 374, 378, 413, 418, 421, 425, 439, 451, 452, 456, 459, 473, 552, 582, 588.

Superfamily Grapsoidea MacLeay, 1838

FAMÍLY PLAGUSIIDAE Dana, 1851

*Euchirograpsus antillensis* Türkay, 1975

Distribution: Western Atlantic – Florida, Antilles, Venezuela, and Brazil (São Paulo and Rio Grande do Sul).

Habitat: Prefers sand bottoms. Between 15 and 415 m.

Material examined: Station 458.

Superfamily Palicoidea Bouvier, 1898

FAMILY PALICIDAE Bouvier, 1898

*Palicus alternatus* Rathbun, 1897

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico and Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Sand, gravel, broken-shell, coral and mud bottoms. From shallow waters to 110 m.

Material examined: Stations 1674, 1711.

*Palicus dentatus* (A. Milne-Edwards, 1880)

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles and Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Coral and broken-shell bottoms. From 30 to 140 m depth.

Material examined: Stations 1674, 1883.

*Palicus obesus* (A. Milne-Edwards, 1880)

Distribution: Western Atlantic – Florida, Gulf of Mexico, Mexico and Brazil (from Rio de Janeiro to Rio Grande do Sul).

Habitat: Preferentially on mud bottoms, between 20 and 220 m.

Material examined: Stations 279, 569, 579.

*Palicus sica (*A. Milne-Edwards, 1880)

Distribution: Western Atlantic – South Carolina, Florida, Gulf of Mexico, Antilles and Brazil (from Amapá to Rio Grande do Sul).

Habitat: Sand, mud, broken-shell and coral bottoms. From shallow waters to 190 m.

Material examined: Stations 279, 438, 443, 465, 569, 1646, 1648, 1656, 1674, 1740, 1883.

**DISCUSSION**

The cryophilic species of the Magellanic (cold-temperate) and Argentinian (warm-temperate) distribution patterns possess specific characteristics of thermal tolerance, as shown by the northern limits of their distributions. Whereas the Magellanic species occur only as far north as Rio Grande do Sul, the Argentinian species extend to the warmer waters of the coast of Rio de Janeiro (Melo 1985).

The Magellanic species are probably derived from the so-called Chilean meridional fauna (Boschi 1966). Their distribution appears to show that the southern East Pacific and the southern West Atlantic constitute a biogeographical unit. Seven species (12.2%) found in the region studied are from Magellanic origin, or subantarctic waters: *Eurypodius latreillei, Libidoclaea granaria, Peltarion spinulosum, Corystoides chilensis, Bellia picta*, *Collodes rostratus* and *Leurocyclus tuberculosus*. All of these species also occur on the Chilean coast.

The species of the Argentinian pattern show characteristics of a subtropical fauna, or of warm-temperate waters. Under the influence of the Malvinas Current, they normally extend north to Cabo Frio in Rio de Janeiro, where the local upwelling prevents them from passing this limit. Five species of this pattern ( 8.6%) were found on the coast of Rio Grande do Sul:*, Rochinia gracilipes, Podochela atlantica, Libinia spinosa, Pelia rotunda* and *Spinolambrus fraterculus.*

The Carolinian (warm-temperate waters) and Caribbean (tropical) patterns showed the highest numbers of species in the region studied, since these species exploit the warm waters of the Brazil Current, to reach to Rio Grande do Sul and Uruguay. Fifteen species of Carolinian origin (25.8%) and 12 tropical species (20.7%) were collected by the GEDIP Project.

Nine Virginian species (15.5%), of cold-temperate waters, which seek out deeper waters, extend to the region.

Three species (5.0%), all in the family Portunidae: *Callinectes sapidus, Cronius ruber* and *Ovalipes trimaculatus,* with circumtropical distribution, were found.

*Apiomithrax violaceus, Moreiradromia antillensis* and *Hepatus pudibundus* were the three

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species (5.0%) with an amphi-Atlantic distribution that was collected.

The rate of endemism was relatively low (7.2%). Only 4 species endemic to the region were found, demonstrating that the region has not undergone long periods of isolation.

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Table I. Collection stations (coordinates, date, depth, temperature, salinity, species and number of species)

| Stations | Latitude | Longitude | Date | Depth | Temperature | Salinity | Species | Nº of species |
|---|---|---|---|---|---|---|---|---|
| 275 | 33:55 | 53:20 | 24/04/68 | 21 | 17.21 | 28.279 | *Leurocyclus tuberculosus, Libinia spinosa* | 2 |
| 277 | 34:32 | 52:22 | 25/04/68 | 60 | 16.79 | 33.896 | *Leurocyclus tuberculosus* | 1 |
| 279 | 34:19 | 51:43 | 25/04/68 | 154 | 20.86 | 36.493 | *Palicus obesus, Palicus sica, Spinolambrus pourtalesii, Leurocyclus tuberculosus* | 4 |
| 280 | 34:05 | 52:11 | 26/04/68 | 60 | 17.40 | 34.105 | *Leurocyclus tuberculosus, Stenocionops furcatus* | 2 |
| 281 | 33:52 | 52:37 | 26/04/68 | 30 | 17.97 | 32.588 | *Leurocyclus tuberculosus* | 1 |
| 282 | 33:52 | 52:53 | 26/04/68 | 15 | 17.35 | 27.487 | *Libinia spinosa* | 1 |
| 285 | 33:40 | 51:42 | 27/04/68 | 92 | 18.51 | 36.077 | *Pseudorhombila octodentata, Portunus spinicarpus* | 2 |
| 286 | 33:58 | 51:19 | 27/04/68 | 604 | 11.17 | 34.986 | *Pseudorhombila octodentata, Frevillea hirsuta* | 2 |
| 288 | 33:19 | 51:20 | 28/04/68 | 71 | 20.72 | 36.158 | *Pseudorhombila octodentata, Cyrtoplax spinidentata* | 2 |
| 289 | 32:58 | 51:49 | 28/04/68 | 42 | 18.65 | 33.248 | *Leurocyclus tuberculosus, Libinia spinosa* | 2 |
| 290 | 32:16 | 51:58 | 28/04/68 | 21 | 17.94 | 30.160 | *Portunus spinicarpus* | 1 |
| 291 | 29:35 | 49:48 | 20/06/68 | 25 | 17.22 | 33.016 | *Leurocyclus tuberculosus, Libinia spinosa* | 2 |
| 293 | 30:06 | 48:56 | 21/06/68 | 133 | 18.43 | 36.126 | *Chasmocarcinus typicus, Chasmocarcinus rathbuni, Portunus spinicarpus* | 3 |
| 296 | 30:33 | 49:21 | 22/06/68 | 150 | 17.40 | 35.935 | *Portunus spinicarpus* | 1 |
| 299 | 30:42 | 50:06 | 22/06/68 | 68 | 18.19 | 34.996 | *Chasmocarcinus typicus, Cyrtoplax spinidentata, Libinia spinosa* | 3 |
| 305 | 31:41 | 50:29 | 24/06/68 | 103 | 19.06 | 35.894 | *Chasmocarcinus typicus* | 1 |
| 310 | 31:48 | 51:22 | 25/06/68 | 22 | 14.20 | 39.297 | *Libinia spinosa, Ovalipes trimaculatus* | 2 |
| 312 | 32:27 | 51:22 | 26/06/68 | 57 | 14.05 | 33.626 | *Chasmocarcinus typicus* | 1 |
| 313 | 32:45 | 50:55 | 26/06/68 | 78 | 15.16 | 34.639 | *Chasmocarcinus rathbuni, Speocarcinus meloi, Moreiradromia antillensis,* | 3 |
| 315 | 33:28 | 50:46 | 26/06/68 | 166 | 18.29 | 36.102 | *Acanthocarpus alexandri, Persephona mediterranea,Portunus spinicarpus* | 3 |
| 316 | 33:10 | 51:14 | 27/06/68 | 72 | 12.80 | 33.593 | *Pseudorhombila octodentata* | 1 |
| 320 | 33:15 | 52:02 | 28/06/68 | 47 | 12.99 | 33.066 | *Cyrtoplax spinidentata* | 1 |
| 321 | 33:30 | 51:40 | 28/06/68 | 85 | 12.43 | 33.630 | *Cyrtoplax spinidentata* | 1 |
| 324 | 33:58 | 52:00 | 29/06/68 | 47 | 17.74 | 33.517 | *Libinia spinosa* | 1 |
| 325 | 33:45 | 52:25 | 29/06/68 | 28 | 13.03 | 32.868 | *Leurocyclus tuberculosus, Ovalipes trimaculatus* | 2 |
| 328 | 34:04 | 52:46 | 29/06/68 | 44 | 12.87 | 32.832 | *Leurocyclus tuberculosus, Cyrtoplax spinidentata* | 2 |
| 330 | 34:35 | 52:00 | 30/06/68 | 148 | 17.70 | 35.970 | *Myropsis quinquespinosa, Portunus spinicarpus* | 2 |
| 362 | 30:29 | 49:19 | 17/08/68 | 128 | 17.12 | 35.919 | *Portunus spinicarpus* | 1 |
| 363 | 30:09 | 49:35 | 17/08/68 | 60 | 18.85 | 36.090 | *Portunus spinicarpus, Cyrtoplax spinidentata* | 2 |
| 364 | 29:53 | 50:00 | 17/08/68 | 23 | 17.30 | 34.301 | *Hepatus pudibundus, Libinia spinosa,* | 2 |

continuação

Table I. (cont.) Collection stations (coordinates, date, depth, temperature, salinity, species and number of species)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 365 | 30:26 | 50:09 | 18/08/68 | 21 | 17.39 | 33.642 | *Libinia spinosa* | 1 |
| 367 | 30:54 | 49:23 | 20/08/68 | 184 | 14.69 | 35.490 | *Latreillia williamsi* | 1 |
| 368 | 31:22 | 49:42 | 20/08/68 | 200 | 16.38 | 35.748 | *Latreillia williamsi* | 1 |
| 369 | 31:07 | 50:05 | 21/08/68 | 114 | 17.05 | 35.879 | *Portunus spinicarpus* | 1 |
| 371 | 31:18 | 50:48 | 21/08/68 | 25 | 17.98 | 35.216 | *Libinia spinosa* | 1 |
| 374 | 32:18 | 50:13 | 23/08/68 | 148 | 18.02 | 35.662 | *Chasmocarcinus typicus, Myropsis quinquespinosa, Pseudorhombila octodentata* | 3 |
| 378 | 32:15 | 51:16 | 24/08/68 | 57 | 17.54 | 35.277 | *Homola mínima, Speocarcinus meloi, Pseudorhombila octodentata, Portunus spinicarpus* | 4 |
| 379 | 32:32 | 50:51 | 24/08/68 | 70 | 18.45 | 36.012 | *Chasmocarcinus typicus, Speocarcinus meloi,* | 2 |
| 383 | 32:40 | 51:37 | 25/08/68 | 46 | 15.78 | 33.557 | *Persephona mediterranea* | 1 |
| 387 | 33:23 | 51:28 | 25/08/68 | 82 | 15.70 | 35.401 | *Portunus spinicarpus* | 1 |
| | | | | | | | | |
| 395 | 34:10 | 52:14 | 27/08/68 | 62 | 12.80 | 33.874 | *Hepatus pudibundus* | 1 |
| 396 | 34:26 | 51:47 | 27/08/68 | 155 | 14.73 | 35.528 | *Hepatus pudibundus, Latreillia williamsi, Homola minima.* | 3 |
| 397 | 29:45 | 49:55 | 25/10/68 | 26 | 17.96 | 35.639 | *Hepatus pudibundus, Persephona mediterranea, Libinia spinosa* | 3 |
| 399 | 30:17 | 49:07 | 25/10/68 | 135 | 15.58 | 35.596 | *Portunus spinicarpus* | 1 |
| 401 | 30:50 | 49:15 | 26/10/68 | 183 | 14.88 | 35.540 | *Latreillia williamsi* | 1 |
| 402 | 30:33 | 49:43 | 26/10/68 | 98 | 16.08 | 35.710 | *Hepatus pudibundus, Chasmocarcinus typicus, Persephona mediterranea, Portunus spinicarpus* | 4 |
| 403 | 30:14 | 50:08 | 26/10/68 | 24 | 18.33 | 35.770 | *Hepatus pudibundus, Persephona mediterranea, Libinia spinosa* | 3 |
| 405 | 34:34 | 52:29 | 29/10/68 | 65 | 9.83 | 33.557 | *Peltarion spinulosum, Collodes rostratus, Libinia spinosa, Stenocionops furcatus, Portunus spinicarpus, Rochinia gracilipes* | 6 |
| 406 | 34:12 | 52:51 | 30/10/68 | 65 | 13.74 | 33.703 | *Leurocyclus tuberculosus, Libinia spinosa* | 2 |
| 407 | 33:53 | 53:23 | 30/10/68 | 18 | 17.15 | 31.227 | *Corystoides chilensis, Hepatus pudibundus, Libinia spinosa* | 3 |
| 408 | 33:33 | 52:55 | 30/10/68 | 19 | 17.41 | 31.546 | *Libinia spinosa* | 1 |
| 409 | 33:47 | 52:35 | 30/10/68 | 32 | 16.29 | 33.564 | *Corystoides chilensis, Hepatus pudibundus, Collodes rostratus, Libinia spinosa* | 4 |
| 410 | 34:03 | 52:07 | 31/10/68 | 60 | 11.71 | 33.459 | *Leurocyclus tuberculosus, , Portunus spinicarpus* | 2 |
| 411 | 34:19 | 51:42 | 31/10/68 | 196 | 15.68 | 35.752 | *Osachila tuberosa, Latreillia williamsi,Spinolambrus fraterculus* | 3 |
| 412 | 33:54 | 51:23 | 31/10/68 | 165 | 16.96 | 35.979 | *Latreillia williamsi, Stenocionops furcatus, Spinolambrus pourtalesii* | 3 |
| 413 | 33:37 | 51:41 | 31/10/68 | 78 | 16.20 | 34.985 | *Chasmocarcinus typicus, Speocarcinus carolinensis, Pseudorhombila octodentata, Frevillea hirsuta, Leurocyclus tuberculosus, Portunus spinicarpus, Speocarcinus meloi* | 7 |
| 414 | 33:26 | 52:09 | 01/11/68 | 50 | 16.60 | 33.996 | *Libinia spinosa* | 1 |
| 416 | 32:45 | 52:20 | 01/11/68 | 148 | 18.80 | 32.188 | *Callinectes danae* | 1 |
| 417 | 33:00 | 51:50 | 01/11/68 | 50 | 16.66 | 34.785 | *Mesorhoea sexspinosa, Speocarcinus meloi* | 2 |
| 418 | 33:18 | 51:21 | 02/11/68 | 69 | 16.44 | 35.039 | *Pseudorhombila octodentata* | 1 |
| 419 | 33:36 | 50:53 | 02/11/68 | 190 | 15.67 | 35.726 | *Chasmocarcinus typicus, Portunus spinicarpus* | 2 |

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continuação

Table I. (cont.) Collection stations (coordinates, date, depth, temperature, salinity, species and number of species)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 421 | 32:53 | 51:01 | 03/11/68 | 68 | 17.13 | 35.374 | *Speocarcinus meloi, Pseudorhombila octodentata* | 2 |
| 425 | 32:08 | 51:10 | 04/11/68 | 57 | 17.68 | 35.716 | *Speocarcinus meloi, Pseudorhombila octodentata, Libinia spinosa, Mesorhoea sexspinosa, Portunus spinicarpus* | 5 |
| 427 | 32:34 | 50:29 | 04/11/68 | 122 | 17.53 | 35.863 | *Chasmocarcinus typicus, Speocarcinus meloi,* | 2 |
| 429 | 31:51 | 50:37 | 05/11/68 | 89 | 16.69 | 35.820 | *Portunus spinicarpus* | 1 |
| 430 | 31:33 | 51:05 | 05/11/68 | 200 | 19.02 | 35.311 | *Libinia spinosa* | 1 |
| 431 | 31:10 | 50:41 | 05/11/68 | 19 | 17.90 | 35.735 | *Libinia spinosa* | 1 |
| 432 | 31:25 | 50:17 | 06/11/68 | 112 | 16.17 | 35.779 | *Chasmocarcinus typicus* | 1 |
| 434 | 29:34 | 49:50 | 04/12/68 | 25 | 16.77 | 35.766 | *Leurocyclus tuberculosus* | 1 |
| 436 | 30:15 | 49:00 | 04/12/68 | 140 | 15.77 | 35.702 | *Portunus spinicarpus* | 1 |
| 437 | 30:23 | 48:37 | 04/12/68 | 195 | 14.89 | 35.577 | *Anomalothir furcillatus* | 1 |
| 438 | 30:40 | 49:09 | 05/12/68 | 172 | 15.27 | 35.631 | *Palicus sica, Latreillia williamsi* | 2 |
| 439 | 30:22 | 49:36 | 05/12/68 | 92 | 16.05 | 35.707 | *Chasmocarcinus typicus, Pseudorhombila octodentata, Portunus spinicarpus* | 3 |
| 441 | 30:34 | 50:17 | 05/12/68 | 19 | 19.06 | 35.808 | *Libinia spinosa* | 1 |
| 442 | 30:50 | 49:54 | 06/12/68 | 122 | 15.75 | 35.693 | *Portunus spinicarpus* | 1 |
| 443 | 31:06 | 49:30 | 06/12/68 | 208 | 16.03 | 35.754 | *Palicus sica* | 1 |
| 444 | 31:31 | 49:47 | 06/12/68 | 294 | 17.64 | 35.859 | *Spinolambrus pourtalesii* | 1 |
| 445 | 31:16 | 50:14 | 06/12/68 | 117 | 16.35 | 35.785 | *Portunus spinicarpus* | 1 |
| 447 | 31:25 | 50:58 | 07/12/68 | 25 | 20.80 | 35.675 | *Libinia spinosa* | 1 |
| 448 | 31:42 | 50:31 | 07/12/68 | 98 | 16.55 | 35.788 | *Portunus spinicarpus* | 1 |
| 449 | 32:00 | 50:05 | 07/12/68 | 185 | 14.33 | 35.502 | *Stenocionops furcatus, Heterocrypta lapidea, Portunus spinicarpus* | 3 |
| 451 | 32:14 | 50:40 | 08/12/68 | 84 | 16.83 | 35.908 | *Speocarcinus meloi, Pseudorhombila octodentata* | 2 |
| 452 | 32:00 | 51:00 | 08/12/68 | 66 | 18.07 | 35.844 | *Pseudorhombila octodentata, Libinia spinosa,Portunus spinicarpus* | 3 |
| 455 | 32:24 | 51:25 | 08/12/68 | 51 | 18.99 | 35.615 | *Collodes rostratus, Libinia spinosa, Portunus spinicarpus* | 3 |
| 456 | 32:46 | 50:59 | 09/12/68 | 66 | 17.51 | 35.526 | *Pseudorhombila octodentata* | 1 |
| 457 | 33:01 | 50:33 | 09/12/68 | 108 | 17.04 | 36.094 | *Portunus spinicarpus* | 1 |
| 458 | 33:29 | 50:44 | 09/12/68 | 207 | 14.58 | 35.728 | *Moreiradromia antillensis, Euchirograpsus antillensis, Anomalothir furcillatus,* | 3 |
| 459 | 33:10 | 51:14 | 09/12/68 | 72 | 15.44 | 35.228 | *Chasmocarcinus typicus, Pseudorhombila octodentata, Cronius ruber, Portunus spinicarpus* | 4 |
| 460 | 32:51 | 51:44 | 10/12/68 | 46 | 19.40 | 35.081 | *Persephona mediterranea, Myropsis quinquespinosa, Leurocyclus tuberculosus, Libinia spinosa, Portunus spinicarpus* | 5 |
| 463 | 34:00 | 52:48 | 11/12/68 | 294 | 16.40 | 33.875 | *Libinia spinosa, Ovalipes trimaculatus* | 2 |
| 464 | 34:19 | 52:22 | 11/12/68 | 63 | 12.22 | 34.008 | *Persephona mediterranea* | 1 |
| 465 | 34:35 | 51:56 | 11/12/68 | 338 | 9.77 | 34.826 | *Acanthocarpus alexandri, Euprognatha rastellifera, Palicus sica* | 3 |
| 467 | 33:57 | 51:58 | 12/12/68 | 61 | 15.85 | 35.288 | *Libinia spinosa* | 1 |
| 468 | 33:41 | 52:23 | 12/12/68 | 26 | 18.46 | 34.801 | *Leurocyclus tuberculosus, Libinia spinosa,Ovalipes trimaculatus* | 3 |

continuação

Table I. (cont.) Collection stations (coordinates, date, depth, temperature, salinity, species and number of species)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 470 | 32:59 | 52:28 | 13/12/68 | 15 | 22.85 | 33.062 | *Persephona mediterranea, Libinia spinosa* | 2 |
| 471 | 33:16 | 52:04 | 13/12/68 | 41 | 18.03 | 35.090 | *Hepatus pudibundus, Leurocyclus tuberculosus, Libinia spinosa* | 3 |
| 473 | 33:47 | 51:16 | 14/12/68 | 138 | 14.98 | 35.592 | *Acanthocarpus alexandri, Chasmocarcinus typicus, Pseudorhombila octodentata, Frevillea hirsuta, Portunus spinicarpus* | 5 |
| 538 | 29:34 | 49:09 | 05/03/69 | 76 | 17.27 | 35.879 | *Hepatus pudibundus, Persephona mediterranea, Leurocyclus tuberculosus* | 3 |
| 539 | 29:52 | 48:41 | 05/03/69 | 138 | 15.64 | 35.679 | *Latreillia williamsi, Portunus spinicarpus* | 2 |
| 541 | 30:30 | 48:44 | 06/03/69 | 208 | 15.35 | 35.630 | *Latreillia williamsi* | 1 |
| 543 | 29:59 | 49:37 | 06/03/69 | 54 | 22.93 | 36.025 | *Leurocyclus tuberculosus, Libinia spinosa,Portunus spinicarpus* | 3 |
| 544 | 29:43 | 49:55 | 07/03/69 | 23 | 24.58 | 34.979 | *Hepatus pudibundus, Persephona mediterranea,* | 2 |
| 545 | 30:14 | 50:09 | 07/03/69 | 22 | 25.10 | 24.535 | *Callinectes sapidus* | 1 |
| 547 | 30:48 | 49:18 | 07/03/69 | 160 | 16.29 | 35.781 | *Latreillia williamsi, Podochela atlantica* | 2 |
| 549 | 30:59 | 49:59 | 08/03/69 | 114 | 17.41 | 35.932 | *Libinia spinosa* | 1 |
| 550 | 30:44 | 50:25 | 08/03/69 | 19 | 24.45 | 33.978 | *Hepatus pudibundus, Libinia spinosa, Microphrys bicornutus, Callinectes sapidus* | 4 |
| 551 | 31:11 | 50:45 | 08/03/69 | 18 | 24.55 | 33.595 | *Callinectes sapidus* | 1 |
| 552 | 31:27 | 50:20 | 08/03/69 | 110 | 16.87 | 35.871 | *Moreiradromia antillensis, Pseudorhombila octodentata* | 2 |
| 554 | 32:12 | 50:12 | 09/03/69 | 149 | 16.94 | 35.875 | *Latreillia williamsi, Stenocionops furcatus, Podochela atlantica* | 3 |
| 555 | 31:55 | 50:39 | 09/03/69 | 89 | 18.02 | 35.989 | *Arenaeus cribrarius* | 1 |
| 557 | 31:56 | 51:40 | 10/03/69 | 19 | 24.34 | 32.926 | *Hepatus pudibundus, Callinectes ornatus, Callinectes sapidus, Persephona mediterranea* | 4 |
| 558 | 32:11 | 51:16 | 10/03/69 | 54 | 18.85 | 34.588 | *Libinia spinosa* | 1 |
| 559 | 32:23 | 50:54 | 10/03/69 | 71 | 19.26 | 35.946 | *Chasmocarcinus typicus* | 1 |
| 561 | 33:14 | 50:42 | 11/03/69 | 128 | 16.05 | 35.729 | *Acanthocarpus alexandri* | 1 |
| 564 | 32:17 | 52:09 | 11/03/69 | 122 | 24.60 | 31.943 | *Hepatus pudibundus, Libinia spinosa* | 2 |
| 565 | 32:48 | 52:21 | 12/03/69 | 140 | 24.58 | 30.319 | *Callinectes sapidus, Arenaeus cribrarius* | 2 |
| 566 | 33:05 | 51:58 | 12/03/69 | 45 | 18.04 | 33.394 | *Leurocyclus tuberculosus* | 1 |
| 568 | 33:37 | 51:07 | 12/03/69 | 128 | 17.03 | 35.900 | *Latreillia williamsi, Spinolambrus pourtalesii* | 2 |
| 569 | 34:02 | 51:30 | 12/03/69 | 158 | 16.45 | 35.804 | *Osachila tuberosa, Latreillia williamsi, Homola minima, Palicus obesus, Palicus sica, Spinolambrus pourtalesii, Portunus spinicarpus* | 7 |
| 571 | 33:32 | 52:18 | 13/03/69 | 35 | 17.72 | 33.513 | *Leurocyclus tuberculosus, Ovalipes trimaculatus* | 2 |
| 573 | 33:41 | 53:08 | 13/03/69 | 19 | 24.28 | 32.539 | *Hepatus pudibundus* | 1 |
| 576 | 34:28 | 51:53 | 14/03/69 | 155 | 15.52 | 35.641 | *Latreillia williamsi, Podochela atlantica* | 2 |
| 577 | 32:20 | 51:54 | 20/03/69 | 24 | 23.09 | 33.061 | *Hepatus pudibundus, Libinia spinosa, Portunus spinimanus* | 3 |
| 579 | 33:15 | 52:14 | 21/03/69 | 36 | 21.73 | 32.853 | *Hepatus pudibundus, Persephona mediterrânea, Spinolambrus fraterculus, Portunus spinimanus, Palicus obesus* | 5 |
| 581 | 32:33 | 51:13 | 22/03/69 | 58 | 18.77 | 33.960 | *Portunus spinicarpus* | 1 |

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continuação

Table I. (cont.) Collection stations (coordinates, date, depth, temperature, salinity, species and number of species)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 582 | 31:59 | 51:01 | 23/03/69 | 58 | 22.20 | 33.907 | *Persephona mediterranea, Pseudorhombila octodentata, Libinia spinosa,Portunus spinimanus, Leurocyclus tuberculosus* | 5 |
| 583 | 31:32 | 50:57 | 23/03/69 | 41 | 22.69 | 33.370 | *Hepatus pudibundus, Libinia spinosa,Ovalipes trimaculatus* | 3 |
| 585 | 30:38 | 50:02 | 23/03/69 | 55 | 22.17 | 34.976 | *Portunus spinimanus* | 1 |
| 586 | 30:08 | 49:49 | 23/03/69 | 44 | 22.36 | 35.332 | *Apiomithrax violaceus, Libinia spinosa, Stenorhynchus seticornis* | 3 |
| 588 | 29:20 | 48:57 | 24/03/69 | 78 | 20.69 | 35.906 | *Pseudorhombila octodentata, Spinolambrus pourtalesii, Frevillea hirsuta* | 3 |
| 590 | 28:12 | 48:13 | 25/03/69 | 56 | 19.42 | 36.031 | *Hepatus pudibundus, Leurocyclus tuberculosus, Portunus spinimanus* | 3 |
| 592 | 25:20 | 47:18 | 26/03/69 | 51 | 18.77 | 35.718 | *Hepatus pudibundus, Persephona mediterranea, Leurocyclus tuberculosus, Portunus spinicarpus,* | 4 |
| GEDIP II | | | | | | | | |
| 1643 | 33:46 | 53:17 | 16/01/72 | 15 | 22.20 | 31.865 | *Hepatus pudibundus, Libinia spinosa, Ovalipes trimaculatus* | 3 |
| 1644 | 33:58 | 52:51 | 16/01/72 | 294 | 19.02 | 32.575 | *Corystoides chilensis, Leurocyclus tuberculosus, Libinia spinosa, Ovalipes trimaculatus* | 4 |
| 1646 | 34:25 | 51:49 | 17/01/72 | 166 | 14.38 | 35.454 | *Cymonomus quadratus, Deilocerus perpusillus, Osachila tuberosa, Latreillia williamsi, Euprognatha rastellifera, Leurocyclus tuberculosus, Palicus sica, Spinolambrus fraterculus, Ovalipes trimaculatus* | 9 |
| 1648 | 34:06 | 51:33 | 18/01/72 | 180 | 14.47 | 35.584 | *Latreillia williamsi, Palicus sica* | 2 |
| 1650 | 33:40 | 52:22 | 18/01/72 | 35 | 17.82 | 32.669 | *Ovalipes trimaculatus* | 1 |
| 1651 | 33:22 | 52:47 | 18/01/72 | 140 | 24.32 | 31.955 | *Libinia spinosa* | 1 |
| 1652 | 32:58 | 52:27 | 18/01/72 | 122 | 24.92 | 32.689 | *Libinia spinosa* | 1 |
| 1656 | 33:17 | 50:34 | 20/01/72 | 173 | 15.83 | 35.804 | *Chasmocarcinus typicus, Myropsis quinquespinosa, Latreillia williamsi, Collodes rostratus, Chasmocarcinus rathbuni, Palicus sica* | 6 |
| 1659 | 32:40 | 51:51 | 20/01/72 | 27 | 26.10 | 34.019 | *Leurocyclus tuberculosus, Ovalipes trimaculatus* | 2 |
| 1660 | 32:28 | 52:15 | 20/01/72 | 15 | 24.10 | 35.566 | *Hepatus pudibundus, Libinia spinosa,* | 2 |
| 1661 | 32:05 | 51:55 | 20/01/72 | 133 | 24.72 | 33.273 | *Callinectes sapidus* | 1 |
| 1662 | 32:20 | 51:22 | 21/01/72 | 52 | 19.45 | 35.900 | *Speocarcinus carolinensis, Libinia spinosa, Callinectes sapidus, Spinolambrus pourtalesii* | 4 |
| 1664 | 32:46 | 50:25 | 21/01/72 | 200 | 16.85 | 35.808 | *Acanthocarpus alexandri, Portunus spinicarpus* | 2 |
| 1666 | 32:24 | 50:14 | 22/01/72 | 210 | 17.00 | 35.817 | *Chasmocarcinus typicus* | 1 |
| 1667 | 32:13 | 50:35 | 22/01/72 | 84 | 17.21 | 35.997 | *Portunus spinicarpus* | 1 |
| 1668 | 32:00 | 50:29 | 22/01/72 | 62 | 17.42 | 35.719 | *Libinia spinosa* | 1 |
| 1669 | 31:45 | 51:26 | 22/01/72 | 15 | 23.90 | 33.783 | *Callinectes sapidus* | 1 |
| 1670 | 31:30 | 51:00 | 25/01/72 | 22 | 24.09 | 34.860 | *Libinia spinosa, Ovalipes trimaculatus.* | 2 |
| 1671 | 31:40 | 50:40 | 25/01/72 | 80 | 16.91 | 35.794 | *Arenaeus cribrarius* | 1 |

continuação

Table I. (cont.) Collection stations (coordinates, date, depth, temperature, salinity, species and number of species)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1674 | 31:33 | 49:52 | 25/01/72 | 209 | 15.16 | 35.569 | *Palicus dentatus, Palicus alternatus, Palicus sica* | 3 |
| 1675 | 31:19 | 50:22 | 26/01/72 | 102 | 16.71 | 35.778 | *Chasmocarcinus typicus, Libidoclaea granaria, Libinia spinosa, Tetraxanthus rathbunae* | 4 |
| 1679 | 30:53 | 50:16 | 26/01/72 | 60 | 16.89 | 35.745 | *Chasmocarcinus typicus, Speocarcinus meloi, Libinia spinosa* | 3 |
| 1680 | 31:03 | 49:55 | 27/01/72 | 130 | 16.43 | 35.775 | *Acanthocarpus alexandri, Myropsis quinquespinosa* | 2 |
| 1686 | 30:27 | 49:48 | 28/01/72 | 71 | 16.90 | 35.863 | *Libinia spinosa* | 1 |
| 1687 | 30:16 | 50:09 | 28/01/72 | 22 | 24.32 | 35.337 | *Libinia spinosa, Ovalipes trimaculatus* | 2 |
| 1688 | 29:43 | 49:55 | 29/01/72 | 24 | 24.29 | 35.681 | *Hepatus pudibundus, Persephona mediterranea, Leurocyclus tuberculosus, Libinia spinosa, Portunus spinimanus* | 5 |
| 1691 | 30:10 | 48:58 | 29/01/72 | 132 | 16.68 | 35.806 | *Acanthocarpus alexandri, Chasmocarcinus typicus* | 2 |
| 1696 | 29:39 | 48:41 | 30/01/72 | 124 | 15.66 | 35.670 | *Acanthocarpus alexandri, Chasmocarcinus typicus, Portunus spinicarpus* | 3 |
| 1697 | 29:30 | 48:57 | 20/01/72 | 91 | 16.27 | 35.766 | *Acanthocarpus alexandri, Chasmocarcinus typicus, Speocarcinus meloi* | 3 |
| 1698 | 29:16 | 49:14 | 30/01/72 | 51 | 16.96 | 35.500 | *Libinia spinosa* | 1 |
| 1699 | 29:13 | 49:35 | 31/01/72 | 200 | 24.01 | 35.725 | *Hepatus pudibundus, Persephona mediterranea,Libinia spinosa, Ovalipes trimaculatus* | 4 |
| 1700 | 28:59 | 48:42 | 31/01/72 | 86 | 13.36 | 35.853 | *Ovalipes trimaculatus* | 1 |
| 1703 | 28:38 | 47:19 | 01/02/72 | 256 | 14.52 | 35.519 | *Portunus spinicarpus* | 1 |
| 1706 | 29:33 | 48:57 | 06/04/72 | 96 | 17.59 | 35.943 | *Chasmocarcinus typicus* | 1 |
| 1711 | 30:28 | 48:42 | 07/04/72 | 194 | 16.80 | 35.748 | *Palicus alternatus* | 1 |
| 1712 | 30:10 | 49:00 | 08/04/72 | 130 | 16.32 | 35.748 | *Chasmocarcinus typicus, Portunus spinicarpus* | 2 |
| 1715 | 29:43 | 49:55 | 08/04/72 | 24 | 23.03 | 35.081 | *Persephona mediterranea* | 1 |
| 1718 | 30:36 | 49:25 | 09/04/72 | 145 | 16.80 | 35.818 | *Acanthocarpus alexandri, Chasmocarcinus typicus* | 2 |
| 1722 | 31:02 | 49:52 | 10/04/72 | 135 | 16.99 | 35.850 | *Portunus spinicarpus* | 1 |
| 1723 | 30:55 | 50:11 | 10/04/72 | 90 | 16.79 | 35.788 | *Chasmocarcinus typicus, Portunus spinicarpus, Chasmocarcinus rathbuni* | 3 |
| 1724 | 30:49 | 50:28 | 10/04/72 | 18 | 22.51 | 34.595 | *Libinia spinosa* | 1 |
| 1725 | 31:09 | 50:43 | 11/04/72 | 21 | 22.28 | 34.832 | *Hepatus pudibundus, Arenaeus cribrarius* | 2 |
| 1730 | 31:50 | 50:21 | 12/04/72 | 116 | 17.79 | 35.905 | *Bellia picta* | 1 |
| 1732 | 31:27 | 51:05 | 12/04/72 | 17 | 22.17 | 33.779 | *Hepatus pudibundus* | 1 |
| 1740 | 34:28 | 51:50 | 19/04/72 | 169 | 16.82 | 35.810 | *Osachila tuberosa, Latreillia williamsi, Palicus sica* | 3 |
| 1742 | 34:01 | 51:32 | 19/04/72 | 175 | 16.13 | 35.710 | *Latreillia williamsi* | 1 |
| 1745 | 33:21 | 52:49 | 20/04/72 | 13 | 20.05 | 33.127 | *Leurocyclus tuberculosus* | 1 |
| 1748 | 33:28 | 51:30 | 20/04/72 | 78 | 21.22 | 36.037 | *Heterocrypta lapidea* | 1 |
| 1756 | 32:22 | 51:20 | 22/04/72 | 57 | 19.78 | 33.257 | *Heterocrypta lapidea* | 1 |
| 1758 | 32:48 | 50:27 | 22/04/72 | 197 | 16.74 | 35.811 | *Acanthocarpus alexandri, Chasmocarcinus typicus, Myropsis quinquespinosa, Portunus spinicarpus* | 4 |

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continuação

Table I. (cont.) Collection stations (coordinates, date, depth, temperature, salinity, species and number of species)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1848 | 30:22 | 48:41 | 03/08/72 | 178 | 15.75 | 35.628 | *Myropsis quinquespinosa* | 1 |
| 1851 | 29:51 | 49:37 | 04/08/72 | 45 | 16.00 | 32.487 | *Hepatus pudibundus* | 1 |
| 1853 | 30:14 | 50:09 | 05/08/72 | 21 | 14.31 | 31.382 | *Arenaeus cribrarius* | 1 |
| 1855 | 30:37 | 49:25 | 05/08/72 | 150 | 16.22 | 35.696 | *Myropsis quinquespinosa* | 1 |
| 1856 | 30:42 | 49:03 | 06/08/72 | 192 | 15.80 | 35.648 | *Myropsis quinquespinosa, Latreillia williamsi, Anomalothir furcillatus, Euprognatha rastellifera, Stenocionops spinosissimus, Palicus sica* | 6 |
| 1859 | 31:03 | 49:46 | 06/08/72 | 144 | 16.86 | 35.760 | *Portunus spinicarpus* | 1 |
| 1860 | 30:50 | 50:06 | 06/08/72 | 79 | 17.02 | 34.379 | *Speocarcinus meloi* | 1 |
| 1867 | 35:18 | 54:13 | 11/08/72 | 27 | 10.66 | 33.619 | *Libinia spinosa, Ovalipes trimaculatus* | 2 |
| | | | | | | | | |
| 1868 | 35:33 | 53:48 | 12/08/72 | 58 | 10.02 | 33.695 | *Speocarcinus carolinensis, Collodes rostratus, Leurocyclus tuberculosus, Libinia spinosa, Rochinia gracilipes, Ovalipes trimaculatus* | 6 |
| 1872 | 35:15 | 52:33 | 13/08/72 | 170 | 12.16 | 35.106 | *Acanthocarpus alexandri, Myropsis quinquespinosa,Homola mínima, Mithrax besnardi* | 4 |
| 1873 | 35:10 | 52:46 | 13/08/72 | 94 | 8.14 | 33.586 | *Homola minima Eurypodius latreillei* | 2 |
| 1874 | 35:00 | 53:05 | 13/08/72 | 48 | 10.36 | 33.629 | *Rochinia gracilipes* | 1 |
| 1876 | 34:35 | 53:58 | 14/08/72 | 22 | 10.86 | 33.257 | *Libinia spinosa* | 1 |
| 1881 | 34:45 | 52:05 | 15/08/72 | 179 | 10.49 | 34.857 | *Acanthocarpus alexandri, Lepteces ornatus* | 2 |
| 1883 | 34:27 | 51:50 | 15/08/72 | 175 | 13.45 | 35.331 | *Osachila antillensis, Latreillia williamsi, Frevillea hirsuta, Euprognatha rastellifera Palicus dentatus, Palicus sica, Spinolambrus fraterculus* | 7 |
| 1884 | 34:15 | 52:12 | 16/08/72 | 64 | 10.56 | 34.054 | *Rochinia gracilipes* | 1 |
| 1891 | 33:39 | 51:07 | 17/08/72 | 200 | 11.78 | 35.076 | *Myropsis quinquespinosa, Portunus spinicarpus* | 2 |
| 1893 | 33:14 | 51:48 | 18/08/72 | 45 | 11.94 | 33.192 | *Pelia rotunda, Libinia spinosa* | 2 |
| 1907 | 32:07 | 50:40 | 21/08/72 | 91 | 18.34 | 35.976 | *Myropsis quinquespinosa, Speocarcinus meloi, Portunus spinicarpus, Chasmocarcinus rathbuni* | 4 |
| 1909 | 31:58 | 50:02 | 21/08/72 | 184 | 16.53 | 35.746 | *Acanthocarpus alexandri* | 1 |
| 1916 | 35:19 | 54:13 | 29/10/72 | 24 | 11.37 | 32.999 | *Libinia spinosa, Ovalipes trimaculatus* | 2 |
| 1917 | 35:30 | 53:46 | 29/10/72 | 52 | 9.95 | 33.564 | *Peltarion spinulosum, Libinia ferreirae, Leurocyclus tuberculosus, Uca maracoani, Ovalipes trimaculatus, Callinectes ornatus* | 6 |
| 1918 | 35:44 | 53:22 | 30/10/72 | 84 | 7.37 | 33.544 | *Peltarion spinulosum, Hepatus pudibundus, Libidoclaea granaria* | 3 |
| 1919 | 35:50 | 53:06 | 30/10/72 | 156 | 8.36 | 34.338 | *Peltarion spinulosum* | 1 |
| 1921 | 35:11 | 52:47 | 30/10/72 | 97 | 7.54 | 33.567 | *Peltarion spinulosum* | 1 |
| 1923 | 34:53 | 53:26 | 30/10/72 | 47 | 10.06 | 33.405 | *Leurocyclus tuberculosus, Libinia spinosa, Ovalipes trimaculatus* | 3 |
| 1924 | 34:34 | 53:56 | 31/10/72 | 22 | 13.26 | 32.122 | *Ovalipes trimaculatus* | 1 |
| 1925 | 34:04 | 53:29 | 31/10/72 | 20 | 12.35 | 31.669 | *Libinia spinosa.* | 1 |
| 1926 | 34:14 | 53:08 | 31/10/72 | 29 | 10.50 | 32.826 | *Libinia spinosa* | 1 |
| 1931 | 33:47 | 53:16 | 01/11/72 | 19 | 13.95 | 30.845 | *Libinia spinosa* | 1 |
| 1932 | 33:21 | 52:48 | 01/11/72 | 14 | 14.25 | 30.720 | *Libinia spinosa* | 1 |
| 1937 | 32:58 | 52:30 | 02/11/72 | 13 | 14.37 | 30.691 | *Libinia spinosa* | 1 |
| 1938 | 32:28 | 52:14 | 02/11/72 | 15 | 15.89 | 30.304 | *Libinia spinosa* | 1 |
| 1940 | 32:51 | 51:26 | 02/11/72 | 59 | 10.96 | 33.099 | *Libinia spinosa, Portunus spinicarpus* | 2 |

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