

CHILEAN MARINE MOLLUSCA OF NORTHERN PATAGONIA COLLECTED DURING THE CIMAR-10 FJORDS CRUISE

MOLUSCOS MARINOS CHILENOS DEL NORTE DE LA PATAGONIA RECOLECTADOS DURANTE EL CRUCERO DE FIORDOS CIMAR-10

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ABSTRACT

The tip of the South American cone is one of the most interesting Subantarctic areas, both biogeographically and ecologically. Nonetheless, knowledge of the area's biodiversity, in particular that of the subtidal marine habitats, remains poor. Therefore, in 2004, a biodiversity research project was carried out as a part of the cruise Cimar-10 Fjords, organized and supported by the Chilean National Oceanographic Committee (CONA). The results of the subtidal marine mollusk surveys are presented herein. The samples were collected aboard the Agor 60 "Vidal Gormaz" in winter 2004. The study area covered the northern Chilean Patagonia from Seno de Relocanví (41°31'S) to Boca del Guafo (43°49'S), on the continental shelf from 22 to 353 m depth. The Mollusca were collected at 23 sampling sites using an Agassiz trawl. In total, 67 species were recorded: 4% Polyplacophora (Leptochitonidae, Ischnochitonidae), 58% Gastropoda (Lepetidae, Fissurellidae, Trochidae, Turbinidae, Calyptraeidae, Capulidae, Naticidae, Ranellidae, Cerithiopsidae, Epitoniidae, Muricidae, Buccinidae, Columbelloidae, Nassariidae, Volutidae, Cancellariidae, Turridae, Pyramidellidae, Acteonidae, Chiliniidae), 36% Bivalvia (Nuculidae, Yoldiidae, Malletiidae, Tindariidae, Limopsidae, Phyllobryidae, Mytilidae, Pectinidae, Propeamussidae, Lucinidae, Thyasiridae, Neoleptonidae, Carditidae, Condylocardiidae, Veneridae, Tellinidae, Lyonsiidae, Pandoridae, Cuspidariidae), and 1% Scaphopoda (Rhabdidae). Our results show a high proportion of southern (Magellanic) subtidal species; 45 species (67%) are strictly Magellanic or Antarctic and another 16 (24%) were widespread species, with distributions extending to the south of our study area. Only six species (9%) were strictly Peruvian.

KEYWORDS: Biodiversity, taxonomy, South America, fjords, Polyplacophora, Gastropoda, Bivalvia, Scaphopoda.

RESUMEN

El extremo sur de Sudamérica representa una de las áreas subantárticas más interesantes desde un punto de vista ecológico y biogeográfico. A pesar de ello, el conocimiento que se tiene sobre la biodiversidad del área, y en particular de los hábitats marinos submareales, es relativamente pobre. En el año 2004 se realizó un proyecto de investigación sobre biodiversidad como parte del crucero Fjords Cimar-10, organizado y financiado por el Comité Oceanográfico Nacional de Chile (CONA). En este artículo se describen los resultados obtenidos sobre de los moluscos submareales. Las muestras fueron obtenidas en el invierno del 2004, a bordo del buque Agor 60 "Vidal Gormaz". El área de estudio se localizó en el extremo norte de la Patagonia chilena, desde el Seno de Relocanví (41°31'S) hasta la Boca del Guafo (43°49'S), en la plataforma continental comprendida entre 22 y 353 m de profundidad. Los moluscos fueron recolectados en 23 estaciones de muestreo empleando una rastra Agassiz. Se registró un total de 67 especies, consistentes en 4% Polyplacophora (Leptochitonidae, Ischnochitonidae), 58% Gastropoda (Lepetidae, Fissurellidae, Trochidae, Turbinidae, Calyptraeidae, Capulidae, Naticidae, Ranellidae, Cerithiopsidae, Epitoniidae, Muricidae, Buccinidae, Columbelloidae,

Nassariidae, Volutidae, Cancellariidae, Turridae, Pyramidellidae, Acteonidae, Chilinidae), 36% Bivalvia (Nuculidae, Yoldiidae, Malletiidae, Tindariidae, Limopsidae, Phyllobryidae, Mytilidae, Pectinidae, Propeamussidae, Lucinidae, Thyasiridae, Neoleptonidae, Carditidae, Condylolcardiidae, Veneridae, Tellinidae, Lyonsiidae, Pandoridae, Cuspidariidae) y 1% Scaphopoda (Rhabdidae). Nuestros resultados muestran que las especies submareales presentan una elevada proporción con carácter austral (magallánico). Del total de 67 taxa registrados, 45 especies son estrictamente magallánicas o antárticas (67%) y 16 presentan una amplia área de distribución que se extiende al sur del área de estudio (24%). Sólo seis de las especies (9%) son estrictamente de la provincia biogeográfica peruana.

PALABRAS CLAVES: Biodiversidad, taxonomía, Sudamérica, fiordos, Polyplacophora, Gastropoda, Bivalvia, Scaphopoda

INTRODUCTION

The southern end of South America represents one of the most interesting Subantarctic areas from both a biogeographical and an ecological point of view. Because it is relatively close to the Antarctic continent (separated by the Scotia Arc) and is the continuation of the coast of the American continent, the southern cone is a crossroads in terms of biogeography and biodiversity (Cañete *et al.* 1999). The peculiar hydrological conditions of the West Wind Drift current, which influences the eastern Pacific border south of 40°S (the limit of the Subtropical Convergence) to Cape Horn (latitude 55°59'S) through the Cape Horn Current, might affect the marine biota (producing affinities in biodiversity, composition, and abundance); the geographical similarities between Isla Chiloe, the Strait of Magellan, and Cape Horn, including the Patagonian shelf and Falkland/Malvinas Islands; and the dissimilarities between the Magellan Province and Antarctic benthic communities (Moyano 1982, Brattström & Johanssen 1983, Arntz *et al.* 1994, Arntz & Gorny 1996). Little marine research has been done in the archipelago or fjordland of southern Chile, which is remote and relatively inaccessible (Reid & Osorio 2000). The northern part of the fjordland (42-44°S) corresponds to the abrupt limit of the Magellanic Zoogeographic Province (see review of Brattström & Johanssen 1983). Knowledge of the area's biodiversity particularly that of the subtidal marine habitats, remains relatively poor. Therefore, in 2004, a biodiversity research project was carried out in this area as part of the cruise Cimar-10 Fjords, organized and supported by the Chilean National

Oceanographic Committee (CONA). This was part of a multidisciplinary program set up to promote regional marine research. This report describes the results of the subtidal marine mollusk survey.

Dell (1971) outlined the history of malacological research in southern Chile, and Reid & Osorio (2000) prepared a brief summary that, in part, will be repeated here. Considering its strategic importance, the Strait of Magellan was the object of many British surveys made onboard the H.M.S. 'Beagle' and 'Adventure' from 1826 to 1830. The Mollusca collected in these surveys were described by King & Broderip (1832), including first descriptions of many common shallow-water species from the Magellanic region. From 1822 to 1831, the notable collector Hugh Cuming amassed a great collection, from which Sowerby (1833a, 1833b, 1834, 1835, 1838, 1840) and Reeve (1843, 1844, 1854) described many new species. The largest monograph on the Mollusca of South America was published by D'Orbigny (1834-1847), based on the results of his own travels in the southern part of the continent. Malacological knowledge of Chile was further advanced by the collections of Claudio Gay, which were studied by Hupé (1854), and by the 1851 arrival in Santiago of Philippi. Towards the end of the nineteenth and in the early twentieth century, a number of important expeditions continued the biological survey of the Magellanic region and dredging activities revealed more of the subtidal fauna (*e.g.* Smith 1881, Rochebrune & Mabile 1889, Strebel 1904, 1905a, 1905b, 1906, 1907, Powell 1951, Dell 1964). Knowledge of the fauna from the fjordland between Puerto Montt and the Magellan Strait comes mostly from two later expeditions. The first was the Lund

University Chile Expedition, which made important collections in the vicinity of Puerto Montt and Isla Chiloe (41-43°S) and other areas in 1948-1949, resulting in important taxonomic surveys of Polyplacophora (Leloup 1956), Cephalopoda (Thore 1959), Bivalvia (Soot-Ryen 1959), and Lamellariacea and Opisthobranchia (Marcus 1959). The second expedition was the Royal Society Expedition to southern Chile in 1958-1959. The Mollusca from this expedition were described by Dell (1971). More recently, an extensive sampling programme was carried out in the Beagle Channel (55°S) and the results were published by Linse (1997). Later in the twentieth century, the production of faunistic works declined and emphasis shifted towards monographic reviews of taxonomic groups at regional or wider levels. Reid & Osorio (2000) presented a complete list of these papers and catalogues, which is only missing one

recent work on Nacellidae (Valdovinos & R uth 2005).

In conclusion, therefore, there is an important amount of literature available on the identification of mollusks from southern Chile. Nevertheless, this literature is difficult for the non-specialist to use. Moreover, it presents deficiencies in geographical coverage, for the majority of the collecting effort has been concentrated in the Magellan Strait, Tierra del Fuego, and the Patagonian Shelf in the south, but in the northern part of the Magellanic Zoogeographic Region, which has not been surveyed as extensively, geographical ranges are inadequately known (Brattstr m & Johanssen 1983, Schr dl 1997). In this paper, to facilitate future marine ecological work in this part of southern Chile, we briefly describe and illustrate the species obtained during the cruise Cimar-10 Fjords between Seno de Reloncav  (41°31' S) and Boca del Guafo (43° 49' S).

TABLE I. General characteristics of the 23 sampling sites considered in the Cimar-10 Fjords cruise.

TABLA I. Caracter sticas generales de los 23 sitios de muestreo consideradas en el crucero Fjords Cimar-10.

Station	Location	Latitude (S)	Longitude (W)	Depth (m)	Substrate
1	Seno Reloncav�	41° 31.44'	72° 55.5'	285	Very fine sand
7	Estero Reloncav�	41° 33.0'	72° 20.04'	196	Very fine sand
8	Seno Reloncav�	41° 45.12'	72° 50.28'	207	Very fine sand
11	Golfo de Ancud	41° 50.94'	73° 23.88'	214	Coarse silt
14	Golfo de Ancud	41° 58.5'	72° 59.3'	230	Very fine sand
15	Golfo de Ancud	42° 06.24'	73° 14.94'	192	Very fine sand
16	Golfo de Ancud	42° 06.96'	72° 59.58'	261	Very fine sand
17	Golfo de Ancud	42° 08.5'	72° 44.9'	353	Fine sand
18	Estero Comau	42° 13.9'	72° 29.8'	350	Fine sand
19	Estero Comau	42° 26.74'	72° 26.1'	80	Very fine sand
20	Golfo de Ancud	42° 20.1'	72° 55.86'	252	Coarse sand and gravel
26	Canal Lemuy	42° 30.06'	73° 33.42'	72	Very fine sand
27	Estero Castro	42° 30.18'	73° 45.66'	22	Very fine sand
29	Canal de Yal	42° 43.02'	73° 35.52'	145	Fine sand
30	Golfo Corcovado	42° 43.68'	73° 23.52'	169	Fine sand
35	Golfo Corcovado	42° 51.48'	73° 21.9'	145	Very fine sand
37	Golfo Corcovado	43° 11.22'	72° 57.78'	179	Very fine sand
42	Golfo Corcovado	43° 27.96'	73° 17.1'	130	Coarse sand and gravel
43	Canal Queilen	43° 00.0'	73° 29.88'	79	Very fine sand
46	Canal Coldita	43° 09.24'	73° 37.86'	55	Coarse sand and gravel
47	Boca del Guafo	43° 47.7'	73° 49.74'	214	Coarse sand and gravel
49	Boca del Guafo	43° 41.28'	74° 07.8'	219	Gravel
49b	Boca del Guafo	43° 39.3'	73° 51.3'	270	Gravel

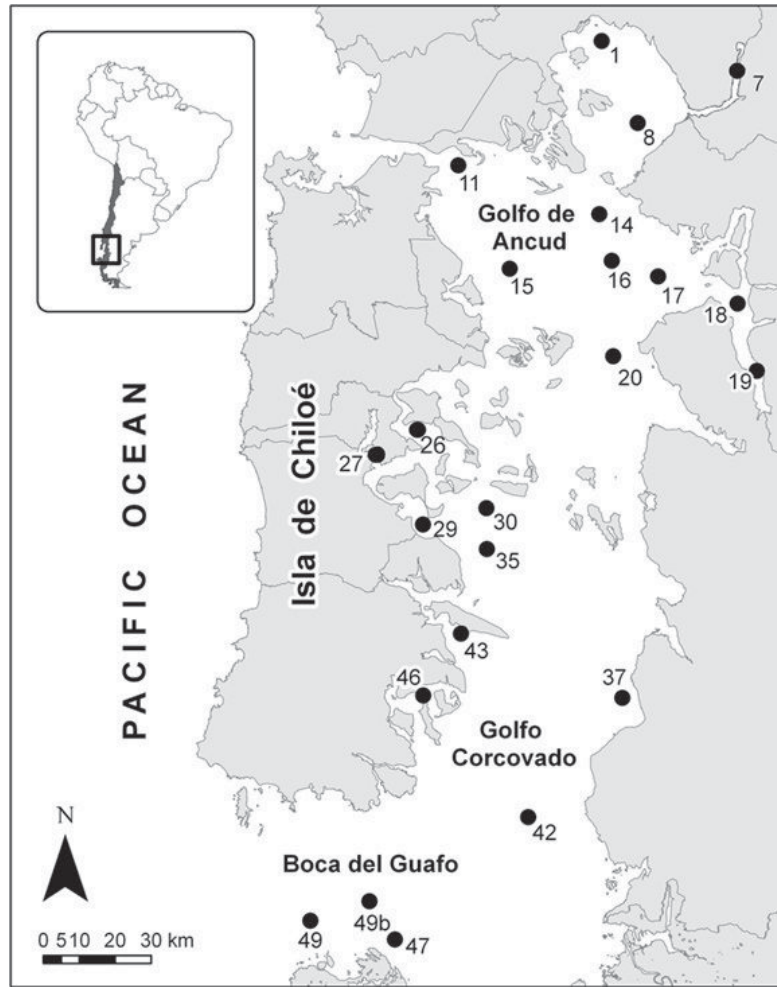


FIGURE 1. Study area and location of the 23 sampling sites considered in the Cimar-10 Fjords cruise.

FIGURA 1. Area de estudio y ubicación de los 23 sitios de muestreo considerados en el crucero Fjords Cimar-10.

MATERIAL AND METHODS

The samples used herein were obtained throughout the cruise Cimar-10 Fjords, organized and supported by the Chilean National Oceanographic Committee (CONA) aboard the Agor 60 "Vidal Gormaz" of the Chilean Navy, during winter 2004. The study area was located in Chile's northern Patagonia, from Seno de Reloncaví (41°31'S) to Boca del Guafo

(43°49'S), on the continental shelf from 22 to 353 m depth (Figure 1, Table I). The Mollusca were collected at 23 sampling sites (100 m² each) using a 1 m Agassiz trawl (10 mm mesh cod end). The specimens were fixed in buffered formalin 10% and then transferred to plastic vials. In the laboratory, the specimens were sorted by species and preserved in ethanol 70%. The material was identified using the specialized literature cited by Reid & Osorio

(2000). The specimens were then deposited in the scientific collections of the Zoological Museum of the University of Concepción, Chile (UCCC) and the Malacological Laboratory of the National Museum of Natural History, Chile (MNHN).

The systematic descriptions in this article give an abbreviated synonymy for each species. This includes the reference to the original description, one or more references to the most recent taxonomic accounts that can be consulted for complete synonymies, and significant recent systematic works. Shell descriptions and dimensions are based on the present material, with additions from other sources as noted. Unless otherwise indicated, "dimensions" refers to the greatest linear dimension of the shell. All illustrations of specimens are from this survey and were obtained using digital photography and Scanning Electron Microscopy (SEM) at the University of Concepción.

RESULTS

CLASS POLYPLACOPHORA

Order Neoloricata

Family Leptochitonidae Dall, 1889

Genus *Leptochiton* Gray, 1847

Leptochiton medinae Plate, 1899

(Fig. 2. 1-3)

Lepidopleurus medinae Plate, 1899: 82, pl. 5, figs. 204-206; Boudet, 1945: 135; Leloup, 1956: 13, fig. 2.

Leptochiton medinae: Kaas & Van Belle, 1985: 80, fig. 35, map 37; Castellanos, 1988: 6, pl. 1, fig. 1-3; Forcelli, 2000: 178, fig. 593; Reid & Osorio, 2000: 113, fig. 6A, C.

Lepidopleurus agesilaus: Boudet, 1945: 135; Leloup, 1956: 12.

RECORDS: Stations 20, 42, 43, 49; depth 79-252 m.

REMARKS: Yellowish-white or brown color. Indistinct lateral and central valve areas, inconspicuous umbos. Surface covered by radial rows of dots or granules that converge on the umbos (lateral areas) and are arranged in longitudinal rows (central areas). Girdle with small scales. *L. medinae* is fairly similar to *Lepidozona culliereti* Rochebrune, 1889, but *L. culliereti* has more evident lateral and central areas,

fewer granules or dots, and a very evident, acuminate mucro of the terminal valve. Unlike *L. medinae*, the Antarctic species *L. kerguelensis* Haddon, 1886 has a girdle with spicules (Fig 2 A-C).

DISTRIBUTION: From Puerto Montt to Tierra del Fuego and the Strait of Magellan (Kaas & Van Belle 1985); from Cape Horn to 42°S in the Atlantic (Castellanos 1988) and Puerto Madryn (Carcelles & Williamson 1951). Bathymetric range from 3 m (Reid & Osorio 2000) to 300 m (Leloup 1956).

Family Ischnochitonidae Dall, 1889

Genus *Callochiton* Gray, 1847

Callochiton puniceus Gould, 1846

(Fig. 2. 4-6)

Callochiton puniceus: Boudet, 1945: 136; Leloup, 1956: 24; Castellanos, 1988: 10, pl. 2, figs. 29-31; Forcelli, 2000: 181, fig. 607.

Icoplax punicea: Powell, 1951: 182.

Lepidopleurus illuminatus: Boudet, 1945: 135.

Chiton dimorphus Rochebrune, 1889: 142, pl. 9, fig. 10; Boudet, 1945: 126.

RECORDS: Station 42; 130 m depth.

REMARKS: Light tan color with darker bands. Valves with striated central areas or with longitudinal folds (except the umbo). Lateral areas with numerous esthetes. Wide girdle with elongated scales and small spines on the edge. In the fairly similar Antarctic species *C. bouveti* Thiele, 1906, the folds of the central areas are oriented obliquely or slightly diagonally to the shell axis. The orientation of these folds in the species *C. gausi* Thiele, 1908 and *C. steinenii* Pfeffer, 1886 (probably synonyms) is intermediate compared to *C. puniceus* and *C. bouveti*. In central Chile, *Lepidozona balaenophila* Schwabe & Sellanes 2004 has a fairly similar general aspect but is clearly distinguished by less marked folds with transversal ends between them and the rectangular scales on the girdle ornamented with riblets.

DISTRIBUTION: From Ancud to the Strait of Magellan, Tierra del Fuego, Falkland/Malvinas Islands, Burdwood Bank; from the intertidal zone to 300 m depth (Castellanos 1988). Also at Cape Horn and Puerto Deseado, Argentina (Leloup 1956).

Genus *Nuttalochiton* Plate, 1899
Nuttalochiton martiali Rochebrune, 1889
(Fig. 2. 7-10)

Toncia martiali Rochebrune, 1889: 139, pl. 9, fig. 8.
Nuttalochiton martiali: Carcelles, 1950: 47, pl. 1, fig. 7; Leloup, 1956: 24; Castellanos, 1988: 8, pl. 1, figs. 12-14; Forcelli, 2000: 181, fig. 605.

RECORDS: Station 42; 130 m depth.

REMARKS: Yellowish or light tan color, with some dark brown spots. Valves sculptured by evident longitudinal granulose ribs, with granules separating the central and lateral areas. Head valve with radial riblets and granules. Girdle with diminutive spicules. *N. hyadesi* Rochebrune, 1889 and *N. mirandus* Thiele, 1906 (Antarctic species) are both more elongated and have evident radial ribs on all valves, especially the head valve.

DISTRIBUTION: From Ancud to the Strait of Magellan and the Falkland/Malvinas Islands, from 15 to 35 m depth (Castellanos 1988), also at Comodoro Rivadavia, Argentina (Carcelles & Williamson 1951). The bathymetric range is increased to 130 m.

CLASS GASTROPODA
Subclase Eogastropoda
Order Patellogastropoda
Family Lepetidae Dall, 1869
Genus *Iothia* Gray, 1857
Iothia coppingeri Smith, 1881
(Fig. 2. 11)

Tectura coppingeri Smith, 1881: 35, pl. 4, figs. 12-12a.

Pilidium coppingeri: Strebel, 1908: 83.

Lepeta coppingeri: Thiele, 1912: 183, 233, 257; Carcelles, 1950: 52, pl. 1, fig. 16; Powell, 1951: 84; Castellanos & Landoni, 1988: 32, pl. 1, fig. 6, pl. 3, fig. 9; Linse, 1997: 27.

Iothia coppingeri: Dell, 1990: 105, figs. 185-186; Ramírez, 1996a: 92, fig. 85; Forcelli, 2000: 57, fig. 63; Reid & Osorio, 2000: 119, fig. 7A; Troncoso *et al.* 2001: 90, fig. 8. (*cf.*).

Patella (?) *emarginuloides* Philippi, 1868: 224.

Lepeta antarctica Smith, 1907: 12, pl. 2, figs. 11-11a.

Iothia coppingeri magellanica Linse, 2002: 56, pl. 1, figs. 9.1.1-1-4.

RECORDS: Stations 42 and 46; between 55 and 130 m depth.

REMARKS: Moderately low shell with an anterior umbo. Surface has radial ribs and concentric striae that form small nodules. Similar to the smallest specimens of the Antarctic species *Nacella concinna* Strebel, 1908, which has a lower shell and more central umbo. DISTRIBUTION: Wide circumantarctic distribution (Dell 1990), with numerous records from Enderby Land to the Ross Sea (Powell 1951). Also recorded from the islands Falklands/Malvinas (Strebel 1908), Shetlands, and South Orkneys (Dell 1990) to Kerguelen and Crozets (Troncoso *et al.* 2001). From Canal Beagle (Linse 1997) and Tierra del Fuego (Castellanos & Landoni 1988) to Estero Elefantes in the Pacific (45°S) (Osorio *et al.* 2006). From 5 to 1108 m depth (Linse 2002). This study extends the northern distributional limit to 43°S.

Subclass Orthogastropoda
Superorder Vetigastropoda
Family Fissurellidae Fleming, 1822
Genus *Puncturella* Lowe, 1827
Puncturella conica D'Orbigny, 1841
(Fig. 2. 12-13)

Emarginula conica D'Orbigny, 1841: 471, pl. 78, figs. 10-11.

Puncturella conica: Powell, 1951: 86, fig. G2 (radula); Castellanos, 1979: 137, fig. 9; Castellanos & Landoni, 1988: 20, pl. 3, fig. 1; Ramírez, 1996a: 20, fig. 5; Forcelli, 2000: 45, fig. 8; Reid & Osorio, 2000: 119, fig. 7B; Troncoso *et al.* 2001: 84, fig. 2.

Puncturella spirigera Thiele, 1912: 186, pl. 11, figs. 4-10; Dell, 1990: 76, figs. 125, 127.

Puncturella cognata Gould, 1852: 371, figs. 478a-c; Castellanos & Landoni, 1988: 20, pl. 1, fig. 5; Linse, 1997: 27; Forcelli, 2000: 45, fig. 7.

RECORDS: Stations 8, 11, 30, 42, and 49; between 130 and 219 m depth.

REMARKS: Dirty cream colored, high, conical shell, with the apex curved forward. Small, elongated, narrow fissure. Rounded radial ribs, resulting in a crenulated margin. Dell (1990) recorded *P. spirigera* Thiele, 1912 in the Ross Sea, although its real synonymy with the senior species *P. conica* remains unknown. Watson (1886) erroneously assigned *P. conica* specimens found in the Strait of Magellan

and subantarctic islands to *P. noachina* Linné, 1771; this matter was resolved later by Powell (1951) when studying the differences between the radulae of the two species.

DISTRIBUTION: Wide circumantarctic distribution (Dell 1990). On the South American continent, from Isla Chiloé to the Strait of Magellan (Reid & Osorio 2000) and Puerto Williams (Osorio 1999); also from the islands Falklands/Malvinas (Castellanos & Landoni 1988), Georgia, and South Orkneys to Kerguelen (Linse 1999). From 6 m (Dell 1971) to 342 m depth (Powell 1951). The junior synonym *P. spirigera* was recorded at 2804 m in the Ross Sea (Dell 1990).

Family Trochidae Rafinesque, 1815
Genus *Calliostoma* Swainson, 1840
Calliostoma consimilis Smith, 1881
(Fig. 2. 14)

Trochus consimilis Smith, 1881: 34, pl. 4, fig. 11.
Calliostoma consimilis: Carcelles, 1950: 53, pl. 1, fig. 17; Castellanos, 1970: 28, pl. 2, fig. 2; Castellanos & Landoni, 1989: 11, pl. 1, fig. 4; Ramírez, 1996a: 120, fig. 121; Linse, 1997: 28; Forcelli, 2000: 59, fig. 75; Linse, 2002: 64, pl. 3, figs. 9.1.1-21-24. Osorio & Reid, 2004: 75, fig. 2C.

RECORDS: Stations 30 and 42; between 130 and 169 m depth.

REMARKS: Conical shell, with a high spire of approximately six slightly convex whorls, and a rounded aperture. No umbilicus. White surface with a light violet tonality and granulated spiral cords with more marked granules on the first cords of each whorl. Similar in appearance to *C. fonkii* Philippi, 1860, which has a more angular aperture and larger granules on the sculpture.

DISTRIBUTION: On the Pacific coast, it has been recorded from 44° to 46°S (Osorio *et al.* 2006), from 20 to 160 m depth (Osorio & Reid 2004); and from Tierra del Fuego to 31°S in the Atlantic (Castellanos & Landoni 1989). This new record increases the northern portion of the geographic distribution to 43°S and the bathymetry to 169 m.

Calliostoma fonkii Philippi, 1860
(Fig. 2. 15)

Trochus fonkii Philippi, 1860: 167, N° 72.

Calliostoma fonkii: Ramírez, 1996a: 122, fig. 125; Forcelli, 2000: 61, fig. 85; Vilvens & Sellanes, 2006: figs. 7, 9.

RECORDS: Station 14; 230 m depth.

REMARKS: Conical shell, with a high spire of approximately six straight whorls. Angular aperture edge. No umbilicus. Brown surface with whitish spiral cords having evident granules in the first cord of each whorl. The most similar species, *C. consimilis* Smith, 1881, is more globose.

DISTRIBUTION: From Salinas (Perú) to Chiloé (Carcelles & Williamson 1951). According to Ramírez (1996a), it inhabits up to 450 m depth.

Calliostoma nudiusculum Martens, 1881
(Fig. 2. 16)

Calliostoma nudiusculum: Castellanos & Landoni, 1989: 7, pl. 1, fig. 2, pl. 3, fig. 1; Forcelli, 2000: 60, fig. 82; Linse, 2002: 64, pl. 4, figs. 9.1.1-28-30; Osorio & Reid, 2004: 74.

RECORDS: Stations 11, 30, and 46; between 55 and 214 m depth.

REMARKS: Shell with 5 ½ whorls that, unlike the other species in the genus, is clearly wider than it is tall. Visible umbilicus, not occluded in spite of an evident white callus. Tan surface with lighter-colored spiral cords; the first three cords of each whorl are nodulose. *Photiastoma taeniata* Wood, 1825, which is similar in shape, is thicker and has an umbilicus that is completely occluded by the callus.

DISTRIBUTION: From 43°S (Carcelles & Williamson 1951), in Boca Guafo (44°S) (Osorio & Reid 2004) to 54°S; to 36°S along the Atlantic coast (Castellanos & Landoni 1989). Its bathymetric range fluctuates between 64 and 250 m (Osorio *et al.* 2006). In this study, its distribution is extended northward to 42°S and its bathymetric range is widened to include lesser depths (55 m).

Genus *Falsimargarita* Powell, 1951
Falsimargarita sp.
(Fig. 2. 17-18)

Falsimargarita sp.: Osorio & Reid, 2004: 75, fig. 2B.

RECORDS: Stations 20 and 42; between 130 and 252 m depth.

REMARKS: Shell with five convex whorls, covered by smooth spiral cords (four on the next to last whorl). Deep, narrow umbilicus; straight but oblique external columella gives a certain internal angularity to the aperture, which is rounded toward the outer lip. Iridescent white surface. No visible growth marks. Osorio & Reid (2004) found a specimen with the same characteristics, placing it only within the genus. Similar to several species from the Antarctic and subantarctic areas, *i.e.* *F. iris* Smith, 1915, *F. gemma* Smith, 1915, *F. thielei* Hedley, 1916, *F. georgiana* Dell, 1990, *F. benthicola* Dell, 1990, and *F. stephaniae* Carvalho Ríos & Simone, 2005; however, these species, amongst other differences, either have more or differently developed spiral cords. The central Chilean species *Margarites huloti* Vilvens & Sellanes 2006, which is very similar in shape, contour, and umbilicus, has eight spiral cords on the next to last whorl. Two other similar species were described by Simone & Birman (2006) in Brazil (*M. mirabilis* and *M. imperialis*), also clearly differentiable by their spiral sculptures. A detailed study of the radula of this specimen and that obtained by Osorio & Reid (2004) is necessary to determine whether or not it corresponds to a new species.

DISTRIBUTION: Osorio *et al.* (2006) reported six specimens around 45°S, from 70 to 275 m depth. This study extends that distribution to 42°S.

Family Turbinidae Rafinesque, 1815
Genus *Homalopoma* Carpenter, 1864
Homalopoma cunninghami Smith, 1881
(Fig. 2. 19)

Collonia cunninghami Smith, 1881: 33, pl. 4, figs. 10-10a.

Homalopoma cunninghami: Powell, 1951: 104; Castellanos & Landoni, 1989: 31, pl. 2, fig. 11, pl. 4, fig. 7; Ramírez, 1996a: 137, fig. 143; Forcelli, 2000: 64, fig. 103; Reid & Osorio, 2000: 123, fig. 7F; Linse, 2002: 74, pl. 7, figs. 9.1.1-49-53.

RECORDS: Stations 11, 20, and 42; between 130 and 252 m depth.

REMARKS: Very thick, intense pink shell, globose, low, with four convex whorls and numerous, dense spiral cords crossed by growth lines. Calcareous operculum. Umbilicus sometimes present, generally

in smaller specimens. Could be confused with smaller specimens of *Margarella violacea* King & Broderip, 1932, which is smooth in texture, proportionally thinner, and has a horny operculum.

DISTRIBUTION: From Isla Chiloé to the Strait of Magellan (Dell 1971), Tierra del Fuego (Powell 1951), Puerto Williams (Osorio 1999), and the Falkland/Malvinas Islands (Linse 1999), from 10 to 66 m depth. In this study, the bathymetric range is extended to 252 m depth.

Superorder Caenogastropoda
Family Calyptraeidae Lamarck, 1809
Genus *Crepidula* Lamarck, 1799
Crepidula philippiana Gallardo, 1977
(*sensu lato*)
(Fig. 3. 20-21)

Crepidula philippiana Gallardo, 1977b: 177, pl. 1, figs. A-C, 2, 3; Ramírez, 1996b: 56, fig. 72A-H; Forcelli, 2000: 74, fig. 158; Aldea & Valdovinos, 2005: 379 (remarck, conferred), 388 (key), fig. 8O.

RECORDS: Stations 20 and 42; between 130 and 252 m depth.

REMARKS: Flat or slightly concave shell, subcircular to elliptical, with a straight apex extending beyond the edge. Whitish exterior, with marked, irregular growth lines. Straight septum extending downward given a lateral view of the shell. This morphospecies presents the same characteristics as *C. unguiformis* Lamarck, 1822, which differs basically in its larval development, thereby constituting a pair of sibling species (Gallardo 1977b, 1996) that cannot be differentiated by the shells alone or without analysing the soft parts. The specimens were assigned to the species due to their closeness to Mehuín, the type site given by Gallardo (1977b). The Atlantic species *C. argentina* Simone, Pastorino & Penchaszadeh, 2000 also has very similar shell characteristics and no differences are noted *a priori* in the type specimens illustrated in Simone *et al.* (2000).

DISTRIBUTION: From Mehuín (39°S) to 46°S (Ramírez, 1996b), at depths no greater than 5 m, although Osorio *et al.* (2006) found *C. unguiformis* at 46°S at 70 m depth. This record increased the bathymetric range to 252 m depth.

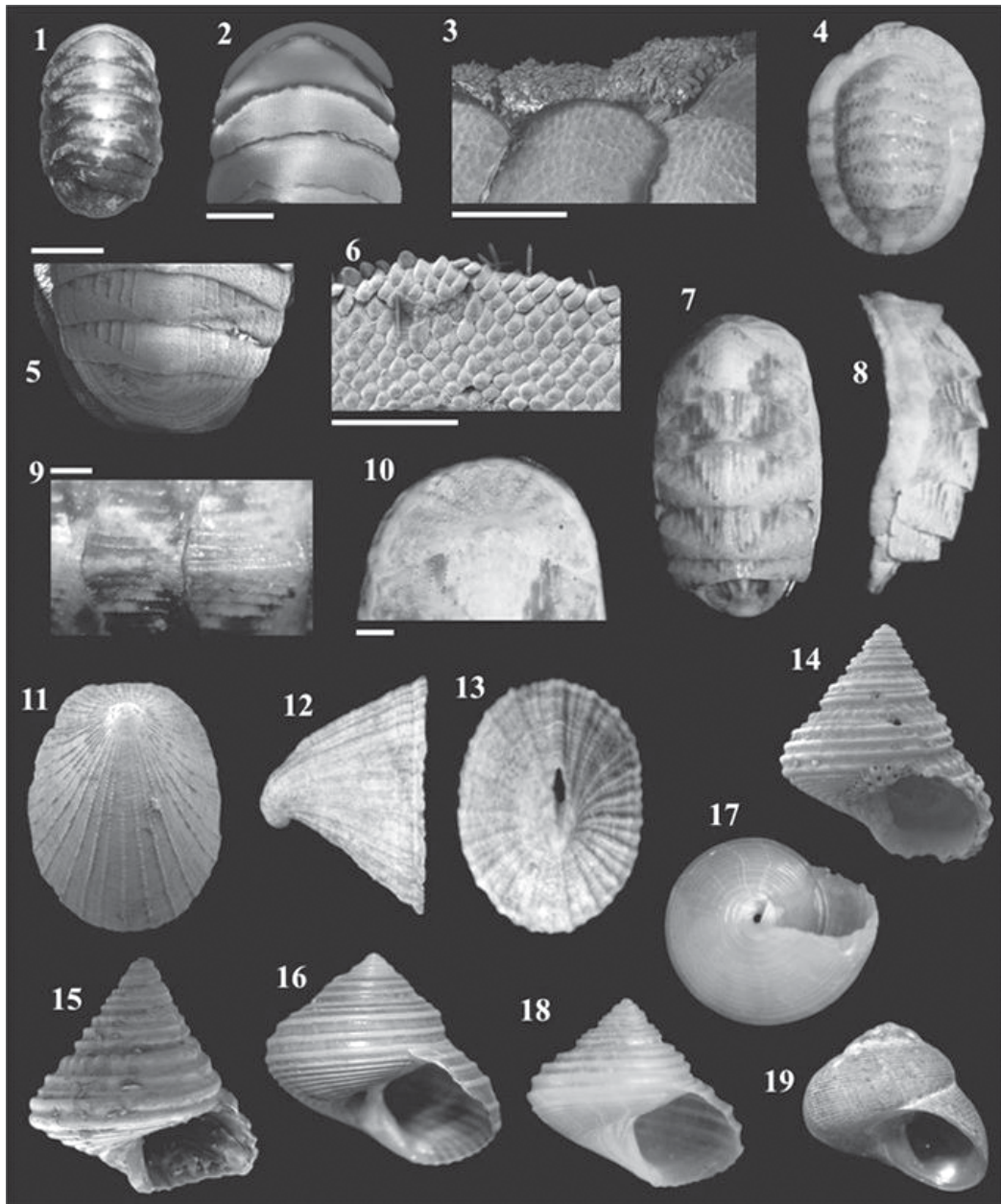


FIGURE 2. General view of the studied specimens. Number indicates UCCC Museum reference.

FIGURA 2. Vista general de los especímenes estudiados. Los números indican la referencia del Museo UCCC.

(1-3) *Leptochiton medinae* Plate, 1899, Stn. 49, 6.06 x 4.74 mm, 32547; (4-6) *Callochiton puniceus* Gould, 1846, Stn. 42, 4.62 x 3.29 mm, 32549; (7-10) *Nuttalochiton martiali* Rochebrune, 1889, Stn. 42, 14.58 x 7.29 mm, 32550; (11) *Iothia coppingeri* Smith, 1881, Stn. 42, 5.14 x 3.96 mm, 32551; (12-13) *Puncturella conica* D'Orbigny, 1841, Stn. 42, 7.22 x 5.08 mm, 32555; (14) *Calliostoma consimilis* Smith, 1881, Stn. 30, 6.12 x 6.22 mm, 32556; (15) *Calliostoma fonkii* Philippi, 1860, Stn. 14, 6.31 x 5.90 mm, 32558; (16) *Calliostoma nudiusculum* Martens, 1881, Stn. 11, 9.76 x 9.89 mm, 32559; (17-18) *Falsimargarita* sp., Stn. 42, 4.90 x 6.03 mm, 32561; (19) *Homalopoma cunninghami* Smith, 1881, Stn. 42, 4.44 x 4.52 mm, 32563. Scale bar: B, E, I, J (1 mm); C, F (0.5 mm).

Genus *Crepidatella* Lesson, 1831

Crepidatella dilatata Lamarck, 1822 (*sensu lato*)
(Fig. 3. 22-23)

Crepidula dilatata Lamarck, 1822 (vol. 6): 25; Watson, 1886: 459; Reid & Osorio, 2000: 123, fig. 3F, G; Aldea & Valdovinos, 2005: 379 (remark, conferred), 388 (key), fig. 8Ñ.

Crepidatella dilatata: Powell, 1951: 125; Marincovich, 1973: 32, fig. 66; Castellanos & Landoni, 1990: 13, pl. 2, fig. 18A-C; Ramírez, 1996b: 60, fig. 76; Linse, 1997: 33; Linse, 2002: 80, pl. 10, figs. 9.1.1-75.

Crepidula dilatata dilatata: Carcelles, 1944: 244.

Crepidula dilatata var. dilatata: Castellanos, 1970: 46, pl. 3, fig. 14; Forcelli, 2000: 73, fig. 154.

RECORDS: Stations 20 and 42; between 130 and 252 m depth.

REMARKS: Convex, subcircular shell, with a curved apex sometimes extending beyond the edge. Variable outer shell coloring: whitish, yellowish-brown, or dark brown. With marked, irregular growth lines and occasional diminutive discontinuous radial striae. Curved septum, more open toward one side of the shell. Presents the same characteristics as *C. fecunda* Gallardo, 1979, which is only differentiable in the larval development, thereby constituting a pair of sibling species (Gallardo 1977a, 1979) like *C. philippiana* and *C. unguiformis*.

DISTRIBUTION: From Isla Lorenzo (Peru) to Punta Arenas, Chile (Marincovich 1973), dwelling on rocks, individuals of *Aulacomya atra* Molina, 1782, or broken shells, from 2 to 18 m depth (Reid & Osorio 2000). Also between 44°S and 46°S from 70 to 160 m depth in Canal Beagle (Osorio 1999) and from Tierra del Fuego to Brazil and the Falkland/Malvinas Islands (Castellanos & Landoni 1990) at depths up to 66 m (Linse 1997). In this sampling, we recorded the species at maximum depths of 252 m.

Family Capulidae Fleming, 1822

Genus *Capulus* Montfort, 1810

Capulus compressus Smith, 1891
(Fig. 3. 24-25)

Capulus compressus Smith, 1891: 436, pl. 34, figs. 4-4a; Carcelles, 1944b: 4, fig. 2; Castellanos, 1970: 54,

pl. 3, fig. 15; Castellanos & Landoni, 1990: 15, pl. 1, fig. 11; Ramírez, 1996b: 68, fig. 84; Linse, 1997: 33; Forcelli, 2000: 75, fig. 164; Osorio & Reid, 2004: 75, fig. 2E.

RECORDS: Stations 30 and 42; between 130 and 169 m depth.

REMARKS: High unguiform shell, with a small spire somewhat turned to the right and fine, irregular growth lines on the surface. Elongated oval base. Differentiated from *C. ungaricoides* Orbigny, 1841, which is wider and lower, presenting a rounded base. DISTRIBUTION: In the Pacific, from 45°S southward (Osorio & Reid 2004), and from the Strait of Magellan to 28°S in the Atlantic, from 76 to 409 m depth (Osorio & Reid 2004). In this study, the northern Pacific limit was extended to 43°S.

Capulus ungaricoides D'Orbigny, 1841
(Fig. 3. 26-28)

Pileopsis ungaricoides D'Orbigny, 1841: 457, pl. 78, fig. 4.

Capulus ungaricoides: McLean & Andrade, 1982: 8, figs. 16-19; Ramírez, 1996b: 68, fig. 85; Forcelli, 2000: 75, fig. 163.

Capulus chilensis: Carcelles, 1944b: 2, fig. 1 (misidentified); Castellanos & Landoni, 1990: 16, pl. 2, fig. 24.

RECORDS: Station 42; 130 m depth.

REMARKS: Low unguiform shell, rounded subcircular base, with the spire extending beyond the posterior edge. Evident growth lines crossed by finer radial striae, all covered by a yellowish periostracum. The species *C. compressus* Smith, 1891 is higher and has a narrower base. McLean & Andrade (1982) discuss the relationship between *C. chilensis* Dall, 1908 and *C. ungaricoides*, differentiating them in the first whorl of the spire, which is more distinguishable in *C. chilensis*. Carcelles (1944b) reported a *C. ungaricoides* specimen, erroneously identified as *C. chilensis*; this situation should be reviewed in detail, also considering the specimen from the Isla de los Estados that Castellanos & Landoni (1990) also attributed to *C. chilensis*.

DISTRIBUTION: According to McLean & Andrade (1982), in Perú from Paita (5°S) to Isla de los Estados (55°S), from 180 m (Osorio *et al.* 2006) to 527 m depth (Osorio 1999); also in Tierra del Fuego

and the Ross Sea, Antarctica (Castellanos & Landoni 1990). This new record extends the bathymetric range to 130 m.

Family Naticidae Forbes, 1838
Genus *Euspira* Agassiz in Sowerby, 1838
Euspira patagonica Philippi, 1845
(Fig. 3. 29)

Natica patagonica Philippi, 1845: 65.
Polinices patagonicus: Powell, 1951: 118; Linse, 1997: 35 (cf.); Forcelli, 2000: 77, fig. 172; Linse, 2002: 95, pl. 11, figs. 9.1.1-84-86.
Falsilunatia patagonica: Dell, 1990: 148, fig. 248; Ramírez, 1996b: 89, fig. 120; Osorio & Reid, 2004: 77, fig. 2D.
Euspira patagonica: Pastorino, 2005a,b: 242, figs. 84-101.
Falsilunatia soluta: Dell, 1990: 147, fig. 250; Castellanos & Landoni, 1990: 22, pl. 3, figs. 25-28 (misidentified).
Natica magellanica: Ramírez, 1996b: 87.

RECORDS: Stations 1, 7, 8, 11, 14, 16, 17, 18, 19, 20, 27, 29, 30, 35, 37, 42, and 43; between 22 and 353 m depth.

REMARKS: Shell with four or five convex whorls, the last very globose. Open umbilicus that is not occluded by a fragile callus. Horny operculum covered by a thin, fragile calcareous layer. Thick growth lines, evident in a thin, dark green periostracum. According to Pastorino (2005a), *Natica magellanica* Hombron & Jacquinot, 1854 corresponds to a junior synonym of *E. patagonica*, since the only existing illustrations of the type species are similar and no original specimens exist. *E. constricta* Dall, 1908 is basically differentiated by its smoother aspect and subsutural ramp in the whorls, in the form of a slight concavity. *Euspira strebeli* Dall, 1908 has a parietal callus and umbilicus, almost completely occluding the umbilicus. Thus, *Falsilunatia soluta* Gould, 1847, whose name was erroneously assigned in some studies to specimens of *E. patagonica* (Dell 1990, Castellanos & Landoni 1990), is distinguished by a shorter spire and a parietal callus with a central constriction.

DISTRIBUTION: At 44°S, in Boca Guafo (Osorio & Reid 2004), as well as in the Strait of Magellan

and Tierra del Fuego to 37°S in the Atlantic (Pastorino 2005a, 2005b), and in the islands Falkland/Malvinas and South Georgia (Powell 1951); from 40 to 411 m depth; Linse (1997) recorded the species in Canal Beagle from 0 to 665 m depth. This work establishes a new northern limit of 41°S for the Pacific coast.

Family Ranellidae Gray, 1854
Genus *Argobuccinum* Bruguière, 1792
Argobuccinum pustulosum ranelliforme
King & Broderip, 1832
(Fig. 3. 30)

Triton ranelliformis King & Broderip, 1832: 347.
Argobuccinum ranelliformis: Ramírez, 1996b: 105.
Argobuccinum ranelliforme: Aldea & Valdovinos, 2005: 390 (key), fig. 9A.
Argobuccinum pustulosum ranelliforme: Reid & Osorio, 2000: 124, fig. 3M.
Argobuccinum pustulosum: Forcelli, 2000: 79, fig. 182.
Ranella argus: Watson, 1886: 400.
Argobuccinum argus: Castellanos & Landoni, 1990: 30, pl. 3, fig. 37.

RECORDS: Station 46; 55 m depth.

REMARKS: Thick, solid shell, with a low spire having approximately seven convex whorls, a surface ornamented by slightly granulose, brown spiral cords; between these are finer, less noticeable white or yellowish striae. Weak growth lines separate the granules; completely covered by a dense, velvety, tan periostracum. Wide pyriform aperture, with an outer lip of variable thickness and a denticulated interior, columellar callus with a posterior denticle and a short siphonal canal. The most similar species is *A. scabrum* King, 1832, with a granulose sculpture, a hairy periostracum with long setae, and a higher spire.

DISTRIBUTION: From Caldera to Tierra del Fuego (Reid & Osorio 2000), from 1 to 80 m depth (Ramírez 1996b). Also, Castellanos & Landoni (1990) indicate a wide distribution for the nominal species *A. argus* Gmelin, 1790 in Tierra del Fuego, Isla de los Estados, South Africa, Tasmania, and New Zealand.

Genus *Fusitriton* Cossmann, 1903

Fusitriton magellanicus magellanicus Röding,
1798
(Fig. 3. 31-32)

Triton magellanicus: Watson, 1886: 395.

Fusitriton magellanicus: McLean & Andrade, 1982:
9, figs. 21-23; Ramírez, 1996b: 109.

Fusitriton magellanicus magellanicus: Forcelli,
2000: 80, fig. 184.

Fusitriton magellanicum: Carcelles, 1944: 247, pl.
2, fig. 23.

Fusitriton cancellatum: Powell, 1951: 130.

Argobuccinum cancellatum: Castellanos &
Landoni, 1990: 31, pl. 3, fig. 36.

RECORDS: Stations 11, 20, and 42; between 130 and
252 m depth.

REMARKS: Thin but solid shell, with six convex whorls
and an oval aperture with a fine but strong lip. With
a columella having a bright callus that may present
a denticulated tubercle at the posterior end, and a
fairly short siphonal canal at the anterior end. The
sculpture is composed of evident axial ribs,
somewhat separated, crossed by thick, less delicate
primary and finer secondary spiral cords; all covered
by a hairy and drooping periostracum. Some authors
presently consider *F. cancellatus* (Lamarck, 1816)
to be a valid synonym, although it was described
later (this matter should be reviewed in detail).

DISTRIBUTION: From Los Vilos (32°S) to Tierra del
Fuego, and to Río Grande do Sul, Brazil, in the
Atlantic; from 180 to 960 m depth, although it can
be found at 5 m depth (McLean & Andrade 1982).
Also, in Canal Beagle and the islands Juan
Fernández (Osorio 1999), Falkland/Malvinas, South
Georgia, and Marion (Powell 1951).

Family Cerithiopsidae H. & A. Adams, 1854

Genus *Eumetula* Thiele, 1912

Eumetula pulla Philippi, 1845
(Fig. 3. 33)

Cerithium pullum Philippi, 1845: 66.

Cerithiopsis pullum: Carcelles, 1950: 56, pl. 2, fig. 23.

Ataxocerithium pullum: Powell, 1951: 111, fig. I34
(rádula); Castellanos, 1970: 49, pl. 4, fig. 9;
Castellanos, 1990: 8, pl. 2, figs. 18, 21; Ramírez, 1996b:
114, fig. 152; Forcelli, 2000: 81, fig. 189.

Eumetula pulla: Reid & Osorio, 2000: 124, fig. 7D.
Cerithium caelatum Gould, 1849: 120.

RECORDS: Stations 30 and 42; between 130 and 169
m depth.

REMARKS: Reddish-brown colored shell, with a high
spire having over 11 slightly convex whorls, each
having three spiral cords crossed by axial grooves,
forming nodules. The base presents three smooth,
delicate spiral cords. Aperture with a smooth, fine
lip. Can be differentiated from the other species of
the family, which lack cords at the base.

DISTRIBUTION: From 46°S in Estero Elefantes (Reid &
Osorio 2000) to Magellan, Falkland/Malvinas
Islands (Thiele 1912), and Burdwood Bank (Powell
1951) from 8 to 313 m depth; also on the shores of
Río de la Plata (Carcelles & Williamson 1951). The
present record constitutes the northernmost site (43°S).

Family Epitoniidae Berry, 1910

Genus *Epitonium* Röding, 1798

Epitonium magellanicum Philippi, 1845
(Fig. 3. 34)

Scalaria magellanica Philippi, 1845: 65.

Opalia magellanica: Carcelles, 1950: 56, pl. 2, fig.
24a.

Cirsotrema magellanica: Powell, 1951: 114.

Coroniscala magellanica: Castellanos, 1990: 21, pl.
2, fig. 17.

Epitonium magellanica: Ramírez, 1996b: 123, fig.
164; Forcelli, 2000: 81, fig. 191 (aff.).

Epitonium magellanicum: Castellanos, 1970: 63, pl.
4, fig. 15; Neville, 1997: 40.

Scalaria magellanica var. *latecostata* Strebel, 1905:
658, pl. 23, figs. 43a-d.

Cirsotrema magellanica var. *latecostata*: Powell,
1951: 114.

Epitonium magellanicum latecostatum:
Castellanos, 1970: 64, pl. 4, fig. 13.

Coroniscala latecostata: Castellanos, 1990: 22, pl.
2, fig. 19.

Coroniscala magellanica latecostata: Forcelli,
2000: 82, fig. 192.

RECORDS: Stations 11, 27, 30, and 35; between 22
and 214 m depth.

REMARKS: White color, with 7 ½ to 8 convex whorls,
each one grooved by thick, slightly oblique, axial

growth lamellas. Each lamella presents superior angularity, which is clearly distinguished in the lamella of the aperture. The base is grooved by a more or less noticeable spiral cord. Distinguished from the species *E. georgettinum* Kiener, 1939, which is noticeably thinner and narrower, with a more sunken aperture, and does not present the mentioned superior angularity in the lamellas. The synonymy between *E. magellanicum* and *E. latecostatum* is given because no defined forms exist for either species; some authors propose different numbers of whorls on the spire (e.g. Castellanos 1990) whereas others report a spiral cord at the base (Forcelli 2000). Nonetheless, an examination of a batch of numerous specimens revealed diverse degrees of development in the whorls and spiral cords, for which high variability is assumed.

DISTRIBUTION: In Chile, reported to 45°S (Osorio *et al.* 2006), as well as in the extreme south, including Punta Arenas and Puerto Harris (Powell 1951); also at Cape Horn, Canal Beagle, Falkland/Malvinas Islands, Isla de los Estados, and Burdwood Bank (Castellanos 1990), from 105 to 545 m depth (Powell 1951). These new records are the farthest north (42°S) in Chile.

Epitonium georgettinum Kiener, 1839
(Fig. 3. 35)

Epitonium georgettina: Castellanos, 1970: 62, pl. 4, fig. 5; Castellanos, 1990: 23; Neville, 1997: 34, 45; Forcelli, 2000: 81, fig. 190.

Scala aff. *orbigny*: Carcelles, 1944: 248, pl. 2, fig. 29.
Epitonium orbigny: Carcelles, 1950: 56, pl. 2, fig. 24; Ramírez, 1996b: 125, fig. 167; Forcelli, 2000: 82.

RECORDS: Stations 27, 30, and 37; between 22 and 179 m depth.

REMARKS: Thin, narrow, white shell, with about eight convex whorls that are not very united except by the axial lamellas, which are slightly thick and flattened, not angulose. Round and somewhat sunken aperture. This species is larger and thicker than *E. magellanicum* Philippi, 1845 and has angulose lamellas in its superior part. The specimens from the Atlantic presented by Castellanos (1990) are larger and have ten whorls.

DISTRIBUTION: From Tierra del Fuego to southern Brazil (Castellanos 1990), from 0 to 101 m depth, although Valdovinos (1999) reported it in Chile from 45°S southward, like *E. orbigny* Nyst, 1871. The specimens from 42°S are a new record.

Family Muricidae Rafinesque, 1815
Genus *Trophon* Montfort, 1810
Trophon acanthodes Watson, 1882
(Fig. 4. 36)

Trophon acanthodes: Watson, 1886: 166, pl. 10, fig. 6; Castellanos & Landoni, 1993a: 8, pl. 2, fig. 28; Forcelli, 2000: 85, fig. 201; Pastorino, 2005b: 67, figs. 66-78.

Fusus acanthodes: Castellanos, 1970: 70, pl. 4, fig. 10.

Trophonopsis acanthodes: Ramírez, 1997: 15, fig. 15.

RECORDS: Stations 30 and 42; between 130 and 169 m depth.

REMARKS: Shell with a somewhat high spire; approximately six convex, angulose whorls; a body whorl with a rounded oval aperture; and a long, straight siphonal canal, approximately 1/3 of the total length. The sculpture is formed by low, separated axial lamellas, which form an evident spine of abaxial prolongation in the area of the angles of each whorl; between these lamellas are numerous finer lamellas that are close together and, when crossed by thicker and more separated spiral cords, give the shell a wavy appearance. Numerous forms in the Antarctic and subantartic areas have well-developed siphonal canals; of these, the most similar to *T. acanthodes* are *Trophon scolopax* Watson, 1882, *Trophon septus* Watson, 1882, and *Trophon arnaudi* Pastorino, 2002; all have spines in abapical prolongation, proportionally less evident or nearly inexistent. This same characteristic is also observed in *T. vangoethemi* Houart, 2003, described for Central Chile, and *Coronium wilhelmense* Ramírez, 1981. For a long time, the latter species was considered to be a synonym of *T. acanthodes*, until Pastorino (2005b) found noticeable differences in the radula and the spines, and abapical (not abaxial) prolongation; this was ratified later by Houart & Sellanes (2006), who also found differences in the protoconch.

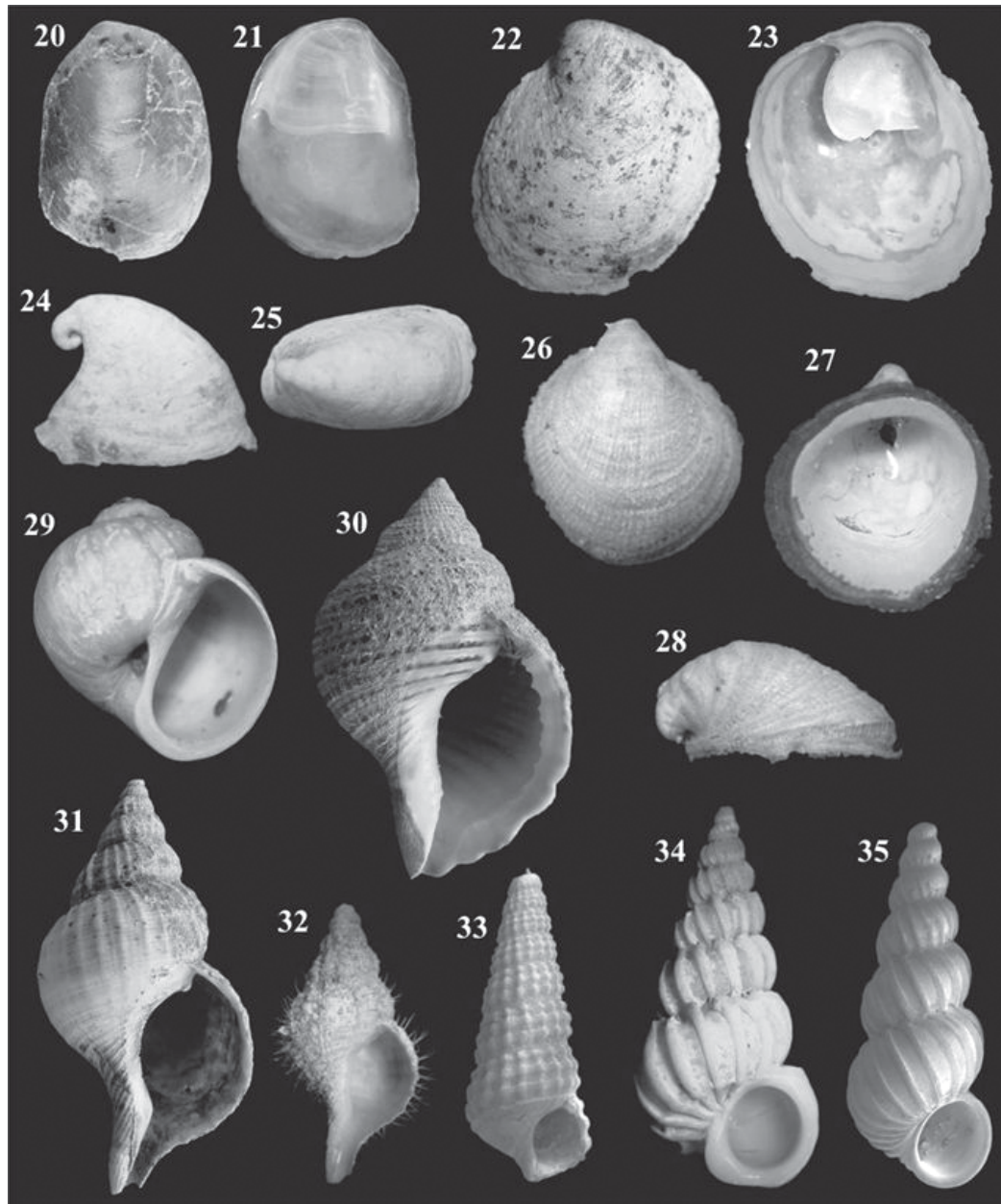


FIGURE 3: General view of the studied specimens. Number indicates UCCC Museum reference.

FIGURA 3. Vista general de los especímenes estudiados. Los números indican la referencia del Museo UCCC.

(20-21) *Crepidula philippiana* Gallardo, 1977 [s.l.], Stn. 42, 20.23 x 14.17 mm, 32564; (22-23) *Crepidatella dilatata* Lamarck, 1822 [s.l.], Stn. 20, 18.20 x 17.99 mm, 32565; (24-25) *Capulus compressus* Smith, 1891, Stn. 30, 5.10 x 3.48 mm, 32568; (26-28) *Capulus ungaricoides* D'Orbigny, 1841, Stn. 20, 13.39 x 10.14 mm, 32569; (29) *Euspira patagonica* Philippi, 1845, Stn. 8, 17.05 x 9.00 mm, 32571; (30) *Argobuccinum pustulosum ranelliforme* King & Broderip, 1832, Stn. 46, 55.82 x 33.52 mm, 32573; (31-32) *Fusitriton magellanicus magellanicus* Röding, 1798, Stn. 42, 21.23 x 10.45 mm, 32574; (33) *Eumetula pulla* Philippi, 1845, Stn. 10, 5.65 x 2.05 mm, 32576; (34) *Epitonium magellanicum* Philippi, 1845, Stn. 27, 18.83 x 8.31 mm, 32578; (35) *Epitonium georgettinum* Kiener, 1839, Stn. 27, 7.32 x 2.69 mm, 32580.

DISTRIBUTION: Southern Chile, from 44°S (Osorio *et al.* 2006) at 160 m depth to 52°S (Watson 1886) at 441 m. According to Castellanos & Landoni (1993a), it is found from southern Patagonia and the Falkland/Malvinas Islands to southern Brazil. This study recorded it at 43°S, the northernmost site reported in the Pacific and the most extreme depth known (130 m).

Trophon bahamondei McLean & Andrade, 1982
(Fig. 4. 37)

Trophon bahamondei McLean & Andrade, 1982: 10, fig. 24-25; Ramírez, 1997: 9, fig. 8; Pastorino, 2005b: 74, figs. 120-125.

RECORDS: Stations 20 and 42; between 130 and 252 m depth.

REMARKS: High spire, with six convex whorls and a subquadrate aperture, with a narrow anterior canal similar in length to the spire, resulting in an evident neck, which clearly differentiates it from the similarly sculptured species *Trophon plicatus* Lightfoot, 1786. The sculpture is composed of axial ribs, somewhat separated and arranged obliquely to the surface, moderately prolonged in the abapical direction on the shoulder. Similar to the Antarctic species *Trophon coulmanensis* Smith, 1907, which has a thinner outer lip and finer, longer lamellas; and to *Trophon shackletoni paucilamellatus* Powell, 1951, which is more globose, with a proportionally shorter siphonal canal.

DISTRIBUTION: From Coquimbo to Pichilemu (McLean & Andrade 1982, Houart & Sellanes 2006), from 200 to 450 m depth. With this record, its distribution range is extended to 43°S and its bathymetry is increased from 130 m.

Trophon pallidus Broderip, 1832
(Fig. 4. 38)

Fuegotrophon pallidus: Ramírez, 1997: 7, fig. 6.
Trophon pallidus: Powell, 1951: 157, figs. L85 (radula), N11 (protoconch); Castellanos & Landoni, 1993a: 10, pl. 2, figs. 31-33C, pl. 4, fig. 47; Linse, 1997: 37; Forcelli, 2000: 86, fig. 206; Linse, 2002: 100, pl. 15, figs. 9.1.1-119-120.

RECORDS: Stations 20 and 42, between 130 and 252 m depth.

REMARKS: Elongated shell with a high spire of seven very convex whorls. With a bulbous protoconch, ornamented by thick, corded, defined axial costas, between which are very fine spiral cords crossed by similar axial cords, giving the shell a soft reticulated aspect. Oval aperture with a somewhat wavy edge and a wide, elongated siphonal canal. This species presents a certain morphological affinity with the Atlantic species *Trophon ohlni* Strebel, 1904 and *Trophon malvinarum* Strebeli, 1908, both with fewer whorls on the spire. *T. ohlni* also has a non-bulbous protoconch and only has axial lamellas. *T. malvinarum* is distinguished from the remaining species by its axial sculpture and thicker, coarse spiral.

DISTRIBUTION: Punta Arenas, the Strait of Magellan, Canal Beagle, the islands Picton, de los Estados, and Falklands/Malvinas, and Burdwood Bank (Castellanos & Landoni 1993a). From 10 to 135 m depth (Linse 1997) or to 159 m depth (Linse 2002). The present record increased the northern latitude in the Pacific to 43°S and its depths to 252 m.

Trophon plicatus Lightfoot, 1786
(Fig. 4. 39)

Trophon plicatus: Castellanos & Landoni, 1993a: 5, pl. 1, figs. 16-22; Forcelli, 2000: 85, fig. 200; Reid & Osorio, 2000: 126, fig. 3N; Pastorino, 2005b: 60, figs. 22-42.

?*Trophon antarcticus* Philippi, 1868: 225; Ramírez, 1997: 9.

Trophon laciniatus: Strebel, 1908: 37; Powell, 1951: 156, fig. L86; Castellanos, 1970: 74, pl. 5, fig. 1.

RECORDS: Station 20; 252 m depth.

REMARKS: Slightly elongated and globose shell, with approximately six convex whorls ornamented by strong, protruding axial lamellas, which form abapical prolongations in the shoulder area. The last whorl is globose; the oval-rounded aperture has a yellowish or purple interior; and the siphonal canal is fairly short and curved. According to Pastorino (2005b), *T. laciniatus* Martín, 1789 is a synonym of this species. *T. patagonicus* D'Orbigny, 1839 is a very similar species that, after reviewing certain specimens, some authors have attributed to *T. plicatus* (see Houart 1998, figs. 8-10), but *T. patagonicus* is more globose and wider, with the

last whorl extending farther. The same is true of the Antarctic species *T. scotianus* Powell, 1951 and *T. shackletoni* (*sensu lato*), and the morphologically variable *T. geversianus* Pallas, 1774; although certain forms have well-developed lamellas, it is distinguished principally by its spiral sculpture and proportionally shorter spire with five whorls. *Trophon bahamondei* McLean & Andrade, 1982 is generally finer in aspect and has a proportionally longer canal and more distanced lamellas. Distribution: Osorio *et al.* (2006) reported the species in Chile from 46°S southward. According to Castellanos & Landoni (1993a), from southern Chile to the Strait of Magellan and Tierra del Fuego, to 36°S on the Atlantic coast; including the Falklands/Malvinas Islands, Isla de los Estados, and Burdwood Bank. Also, on South Georgia Island (Linse 1999). Its bathymetric range varies from 10 to 88 m (Reid & Osorio 2000). In this study, its depth range was extended to 252 m, from 42°S.

Trophon vangoethemi Houart, 2003
(Fig. 4. 40)

Trophon vangoethemi Houart, 2003: 104, figs 6-7, 31-32, 34; Houart & Sellanes, 2006: 58, figs. 11-14, 31-32.

RECORDS: Station 30; 169 m depth.

REMARKS: Somewhat high spiral shell, with approximately four convex whorls ornamented with costas and flattened axial lamellas, which sometimes form short abapical projections on the shoulder, with no spiral sculpture. Oval and somewhat narrow aperture with a smooth outer lip of variable thickness, with a long, slightly curved siphonal canal. Resembles *Pagodula concepcionensis* Houart & Sellanes, 2006, which has a higher spiral, as does *Trophon veronicae* Pastorino, 1999. On the other hand, *Trophon acanthodes* Watson, 1882, *Coronium wilhelmense* Ramírez, 1981, and the Antarctic species *Trophon scolopax* Watson, 1882, *Trophon cuspidarioides* Powell, 1951, and *Trophon arnaudi* Pastorino, 2002 are basically distinguished by their diverse degrees of spiral sculpture development. In this sense, the most similar species in external morphology is *Trophon septus* Watson, 1882, from Kerguelen Islands, which also lacks a spiral sculpture, but has a wider aperture and a longer, straight, narrow siphonal canal.

DISTRIBUTION: Known only in the waters off Concepción over 36°S, from 350 m (Houart 2003) to 613 m depth (Houart & Sellanes 2006). In this study, its distribution is extended south to 43°S and its maximum bathymetric range is reduced to 169 m.

Family Buccinidae Rafinesque, 1815
Genus *Aeneator* Finlay, 1927
Aeneator fontainei D'Orbigny, 1841
(Fig. 4. 41)

Fusus fontainei D'Orbigny, 1841: 447, pl. 63, fig. 2.
Aeneator fontainei: McLean & Andrade, 1982: 13, figs. 31-39; Ramírez, 1997: 73; Osorio & Reid, 2004: 77.

RECORDS: Station 20; 252 m depth.

REMARKS: Whitish, fusiform shell, with a high spiral of approximately seven convex whorls, but with a concave area near the suture; sculptured by brown, rounded axial costas that are lost in the last whorl, crossed by somewhat narrow primary spiral cords, with much narrower, secondary cords between them. Covered by a detachable dark green periostracum. Elongated aperture, with a long siphonal canal and wavy edge due to the marks of the spiral cords. A variety of species have a similar morphological pattern. For example, *Aeneator loisae* Rehder, 1971 has more primary spiral cords but these lack brown coloring and *Aeneator castillai* McLean & Andrade, 1982 has a proportionally shorter, twisted siphonal canal and lacks axial sculpture in the concave subsutural area.

DISTRIBUTION: From Perú to Punta Toro, Chile (33°S), from 20 to 350 m depth (McLean & Andrade 1982), Osorio & Reid (2004) extended the distribution south to 46°S in Estero Elefantes.

Genus *Meteuthria* Thiele, 1912
Meteuthria martensi Strebel, 1905
(Fig. 4. 42)

Euthria martensi Strebel, 1905: 630, pl. 21, figs. 13-13b.

Meteuthria martensi: Thiele, 1912: 243, pl. 13, fig. 7, pl. 16, fig. 18 (radula); Powell, 1951: 149, fig. K62 (radula); Castellanos, 1992a: 20, pl. 1, figs. 7-

9; Linse, 1997: 36; Ramírez, 1997: 78, fig. 91; Linse, 2002: 56, pl. 12, figs. 9.1.1-93-96.

Euthria agnesia Strebel, 1905: 631, pl. 21, figs. 14-14a-c.

Glypteuthria agnesia: Castellanos, 1970: 99, pl. 6, fig. 13.

Met euthria agnesia: Ramírez, 1997: 79, fig. 92.

Buccinulum agnesia: Forcelli, 2000: 91, fig. 244.

Euthria kobelti Strebel, 1905: 632, pl. 21, figs. 15-15a.

RECORDS: Stations: 30 and 42; between 130 and 169 m depth.

REMARKS: White shell with a tan periostracum, and six whorls sculptured by axial riblets crossed by crowded, thinner spiral cords; only the spirals are present at the base; the first whorl of the protoconch is smooth and the second has thick axial cords. Oval aperture that leads into a short, curved siphonal canal. The similar species *Amphissa cancellata* Castellanos, 1979 is more globose, with a shorter spire, more spiral cords per whorl, and a longer, straight siphonal canal.

DISTRIBUTION: From 49° S to Canal Beagle (Ramírez 1997), Magellan (Thiele 1912), Usuahia to Puerto Deseado (Castellanos 1992a). Bathymetric range from 15 m (Ramírez 1997) to 154 m (Linse 2002). This study extends the geographic distribution in Chile from 43°S and its bathymetric range to 169 m.

Genus *Pareuthria* Strebel, 1905

Pareuthria powelli Cernohorsky, 1977

(Fig. 4. 43)

Pareuthria powelli: Forcelli, 2000: 97, fig. 268; Reid & Osorio, 2000: 127, fig. 4D; Linse, 2002: 94, pl. 14, figs. 9.1.1-106-108.

Pareuthria rosea: Powell, 1951: 133; Castellanos, 1970: 100, pl. 7, fig. 2; Castellanos, 1992a: 17, pl. 1, fig. 10; Ramírez, 1997: 65, fig. 74 (Primary homonym junior of *Fusus roseus* Antón, 1838).

Fusus scalaris: Watson, 1886: 203, pl. 12, fig. 5.

Pareuthria scalaris: Powell, 1951: 134 (Primary homonym junior of *Fusus scalaris* Lamarck, 1816).

RECORDS: Stations: 11, 15, 20, 30, and 42; between 130 and 252 m depth.

REMARKS: White shell, with a high spire of six convex whorls, each grooved by thick, diminutive, spiral cords, which are slightly more noticeable at the base;

thick, low axial costas are present but lost at the base. It is most similar to *P. ringei* Strebel, 1905, which has noticeably lower, thin axial costas, if any at all. The species *P. atrata* Smith, 1881 could be a senior synonym (see Castellanos 1992a, Forcelli 2000).

DISTRIBUTION: From 44°S (Osorio *et al.* 2006) to the Strait of Magellan and Tierra del Fuego (Reid & Osorio 2000), Falkland/Malvinas Islands (Thiele 1912), and Burdwood Bank (Linse 1999). Also in Canal Beagle (Osorio 1999), Isla Navarino (55°S), and to 38°S in the Atlantic according to Castellanos (1992a). From 7 to 15 m and up to 201 m depth (Powell 1951). This record constitutes the northernmost site, along with increasing its habitat up to 252 m depth.

Pareuthria cerealis Rochebrune & Mabilie, 1885

(Fig. 4. 44)

Pareuthria cerealis: Carcelles, 1950: 61; Linse, 2002: 91, pl. 13, figs. 9.1.1-97-101.

Pareuthria cerealis: Castellanos, 1992a: 18, pl. 1, fig. 4; Forcelli, 2000: 95, fig. 262.

RECORDS: Station 20; 252 m depth.

REMARKS: Thick, orangish-brown shell, with approximately five slightly convex whorls. Its most distinguishable characteristics are its smooth texture with one or two spiral threads under the suture of each whorl and several marked threads at the base, and a slightly protruding aperture. The most similar species are *Pareuthria paesleri* Strebel, 1905, *Pareuthria janseni* Strebel, 1905, and *Pareuthria michaelsoni* Strebel, 1905. The first is more globose and has spiral threads from the middle of the last whorl, whereas the last two have spiral striae on the entire shell surface.

DISTRIBUTION: The Strait of Magellan, Cape Horn to Puerto Deseado and the Falkland/Malvinas Islands in the Atlantic (Castellanos 1992a), from 15 to 198 m depth (Linse 2002). The distribution is extended northward to 42°S in the Pacific, at a maximum depth of 252 m.

Genus *Savatieria* Rochebrune & Mabilie, 1885

Savatieria coppingeri Smith, 1881

(Fig. 4. 45)

Pleurotoma coppingeri Smith, 1881: 27, pl. 4, fig. 2.

Savatieria coppingeri: Ramírez, 1997: 53, fig. 57; Forcelli, 2000: 93, fig. 252.

Savatieria frigida: Carcelles, 1950: 62, pl. 2, fig. 38; Castellanos, 1970: 96, pl. 6, fig. 11; Castellanos, 1992a: 29, pl. 2, fig. 22; Ramírez, 1997: 54, fig. 58.

Savatieria pfefferi Strebel, 1905: 642, pl. 21, figs. 17a-c; Carcelles & Williamson, 1951: 208.

RECORDS: Stations 20 and 30; between 169 and 252 m depth.

REMARKS: Thick shell, with a high spire of 6 ½ slightly convex whorls, with the last whorl somewhat sunken, an oval aperture with a somewhat angular abapical end, and a short, wide siphonal canal. Sculpture composed of thick, somewhat separated axial costae, crossed by spiral striae that are more distinguished at the base. Of the morphologically similar species, *Savatieria aerolata* Strebel, 1905 and *Savatieria chordata* Castellanos, Rolan & Bartolotta, 1987 have noticeably higher spires with seven whorls and a nodulose sculpture. *Anomacme smithi* Strebel, 1905 has a rounded aperture, without abapical angulosity, a denser axial sculpture, and stronger spiral cords, which give it a more nodose appearance.

DISTRIBUTION: The Strait of Magellan, Canal Beagle, Cape Horn, Falkland/Malvinas Islands (Castellanos 1992a). Osorio (1999) recorded it in Canal Beagle from 15 to 31 m depth and Ramírez (1997) reported it up to 143 m depth. Its northern distribution is extended in the Pacific to 42°S and its depth to 252 m.

Family Columbellidae Swainson, 1840

Genus *Amphissa* Adams, 1853

Amphissa cancellata Castellanos, 1979

(Fig. 4.46)

Amphissa cancellata: Castellanos, 1992a: 10, pl. 2, fig. 18; Forcelli, 2000: 97, fig. 270.

RECORDS: Stations 42 and 49; between 130 and 219 m depth.

REMARKS: Shell with six convex whorls sculptured by spiral cords crossed by more separated and slightly thicker axial riblets, with only the spirals at the base; the protoconch is smooth. Oval aperture with a soft upper cleft and thin lip, without internal denticles characteristic of the family, leading to a somewhat

short, straight, wide siphonal canal, but with a well-marked neck. It is most similar in sculpture and general form to *Met euthria martensi* Strebel, 1905, which is less globose, has a longer spire, a shorter canal, and generally less spiral cords per whorl.

DISTRIBUTION: Known only on the edge of the South American Atlantic from 35°S to 44°S (Castellanos 1992a), from 75 to 235 m depth. These specimens are the first record for Chile and the South Pacific.

Family Nassariidae Iredale, 1916

Genus *Nassarius* Dumeril, 1806

Nassarius gayii Kiener, 1834

(Fig. 4.47)

Nassarius gayi: Marincovich, 1973: 37, figs. 80-81; Castellanos, 1992b: 23, pl. 2, fig. 18; Ramírez, 1997: 100; Forcelli, 2000: 98, fig. 277; Aldea & Valdovinos, 2005: 392 (key), fig. 9L.

Nassarius gayii: Cernohorsky, 1984: 34; Reid & Osorio, 2000: 127, fig. 4E.

? *Buccinum taeniolatum* Philippi, 1845: 69.

Nassarius taeniolatus: Castellanos, 1992b: 22, pl. 2, fig. 17; Ramírez, 1997: 101. Forcelli, 2000: 98, fig. 276.

RECORDS: Stations: 11, 26, 27, 30, 35, and 37; between 22 and 214 m depth.

REMARKS: Elongated reddish-brown shell, with a high spire of six slightly convex whorls that have low, narrow, somewhat separated axial costae in the form of folds, crossed by whitish spiral striae that are close together, forming granules. Narrow aperture with a thin lip, a columella with a regularly thick, well-delimited callus, leading to a very short siphonal canal. Certain doubts exist as to its synonymy with *Nassarius taeniolatus* Philippi, 1845, which was reported for the Chonos Islands in southern Chile (Castellanos 1992b) and is characterized by having thick axial cords, crossed by fine spiral striae and apparently having a thicker denticulated lip than *Nassarius gayii*. *Nassarius coppingeri* Smith, 1881 is less elongated, somewhat more globose, and has generally more noticeable granules.

DISTRIBUTION: From 7°S to 54°S, recorded in Isla Lobos (Peru) (Marincovich 1973) to Puerto Rosario and Bahía Tom (50°S) (Smith, 1881), and the Strait of Magellan. From 6-15 m (Reid & Osorio 2000) to 160-345 m depth (Osorio *et al.* 2006).

Nassarius coppingeri Smith, 1881
(Fig. 4. 48)

Nassa coppingeri Smith, 1881: 30, pl. 4, fig. 7; Carcelles, 1950: 63, pl. 2, fig. 41.

Nassarius coppingeri: Cernohorsky, 1984: 33; Castellanos, 1992b: 21, pl. 2, fig. 14; Forcelli, 2000: 99, fig. 278.

Alectrion miser Dall, 1908: 215, 307, pl. 4, fig. 1.

RECORDS: Stations 1, 7, 8, 11, 14, 15, 16, 17, 19, 20, 26, 27, 29, 30, 35, 37, 43, 46, 49, and 49b; between 22 and 353 m depth.

REMARKS: Elongated shell, with six slightly convex whorls forming a high spire, covered by spiral and axial cords of the same intensity, which form granules where they cross. Rosy white, with purple spiral bands in the upper and lower part of each whorl. The aperture is slightly sunken, narrow, and pyriform, with a thin outer lip and a very thick columellar callus with a large sinus, ending in a very short siphonal canal. Cernohorsky (1984) reported *Nassarius miser* Dall, 1908 from Panamá Gulf as a junior synonym of *Nassarius coppingeri*; however, it is not certain that this is the same species. *N. gayii* Kiener, 1834 is more elongated and less globose and granulose.

DISTRIBUTION: Few concrete records exist regarding its presence. It has been observed in samples from Southern Chile, from Calbuco (41°50'S) and Chonchi (42°36'S) (pers. obs.), as well as in Bahía Tom (50°S) (Cernohorsky 1984) to Tierra del Fuego (Castellanos 1992b). Carcelles & Williamson (1951) recorded it to Río de Janeiro in the Atlantic, which probably is another similar species. If the synonymy of Cernohorsky (1984) is correct, the northern distributional limit is Panama Gulf (8°N). Smith (1881) recorded it from 2 to 55 m depth; this study extends the range to 353 m.

Family Volutidae Rafinesque, 1815

Genus *Adelomelon* Dall, 1906

Adelomelon ancilla Lightfoot in Solander, 1786
(Fig. 4. 49)

Voluta ancilla: Watson, 1886: 255.

Cymbiola ancilla: Carcelles, 1944: 257, pl. 3, fig. 34; Carcelles, 1950: 64, pl. 3, fig. 44.

Adelomelon ancilla: Powell, 1951: 161; Castellanos, 1970: 109, pl. 8, fig. 6; Osorio *et al.*

1979: 19-20, fig. 19; Castellanos & Landoni, 1992: 8, pl. 1, fig. 1; Ramírez, 1997: 104; Forcelli, 2000: 100, fig. 284; Reid & Osorio, 2000: 127, figs. 4F, M.

Adelomelon paradoxa: Carcelles, 1950: 64; Castellanos, 1970: 110, pl. 8, fig. 4.

RECORDS: Stations 11, 14, 20, and 42; between 130 and 252 m depth.

REMARKS: Elongated, fusiform shell, sometimes solid, opaque white in color, sometimes with a weak pattern of longitudinal zig-zag lines. Moderately high spire of seven slightly convex, nearly smooth whorls, except for the fine or nearly imperceptible growth lines that are more noticeable at the base. Dark brown, drooping periostracum. The aperture is elongated and slightly globose, with a bright orange interior, a somewhat arched columella with three or four oblique folds, and a bright clearly delimited callus, ending in a short, wide anterior canal. The relationship between *Adelomelon ancilla* and *A. ancilla* f. *martensi* Strebel, 1906 is being discussed, as some authors (*e.g.* Clench & Turner 1964) propose that *martensi* is a junior synonym of *ancilla*, although the morphological difference between the two is visible, with *martensi* having axial nodulose ribs in the first whorls. When compared to *Odontocymbiola magellanica* Gmelin, 1791, *A. ancilla* is seen to be narrower, with a proportionally higher spire, and a less globose last whorl.

DISTRIBUTION: From 42° to 54°S, recorded at Quinchao Island, Chiloé (pers. obs.) and in Estero Elefantes at 46°S (Reid & Osorio 2000). Also, from the Strait of Magellan, Falkland/Malvinas Islands to the southern Brazil (Clench & Turner 1964). Bathymetric range from 0 to 172 m (Powell 1951), 310 m (Poppe & Goto 1992 in Reid & Osorio 2000), and 664 m in Canal Beagle (Osorio 1999).

Genus *Odontocymbiola* Clench & Turner, 1964

Odontocymbiola magellanica Gmelin, 1791

(Fig. 4. 50)

Voluta magellanica Gmelin, 1791: 3465, No. 110.

Cymbiola magellanica: Carcelles, 1944: 256, pl. 4, fig. 39; Carcelles, 1950: 64, pl. 3, fig. 45.

Odontocymbiola magellanica: Castellanos, 1970: 114, pl. 8, fig. 5; Castellanos & Landoni, 1992: 15, pl. 1, fig. 3; Forcelli, 2000: 101, fig. 290.

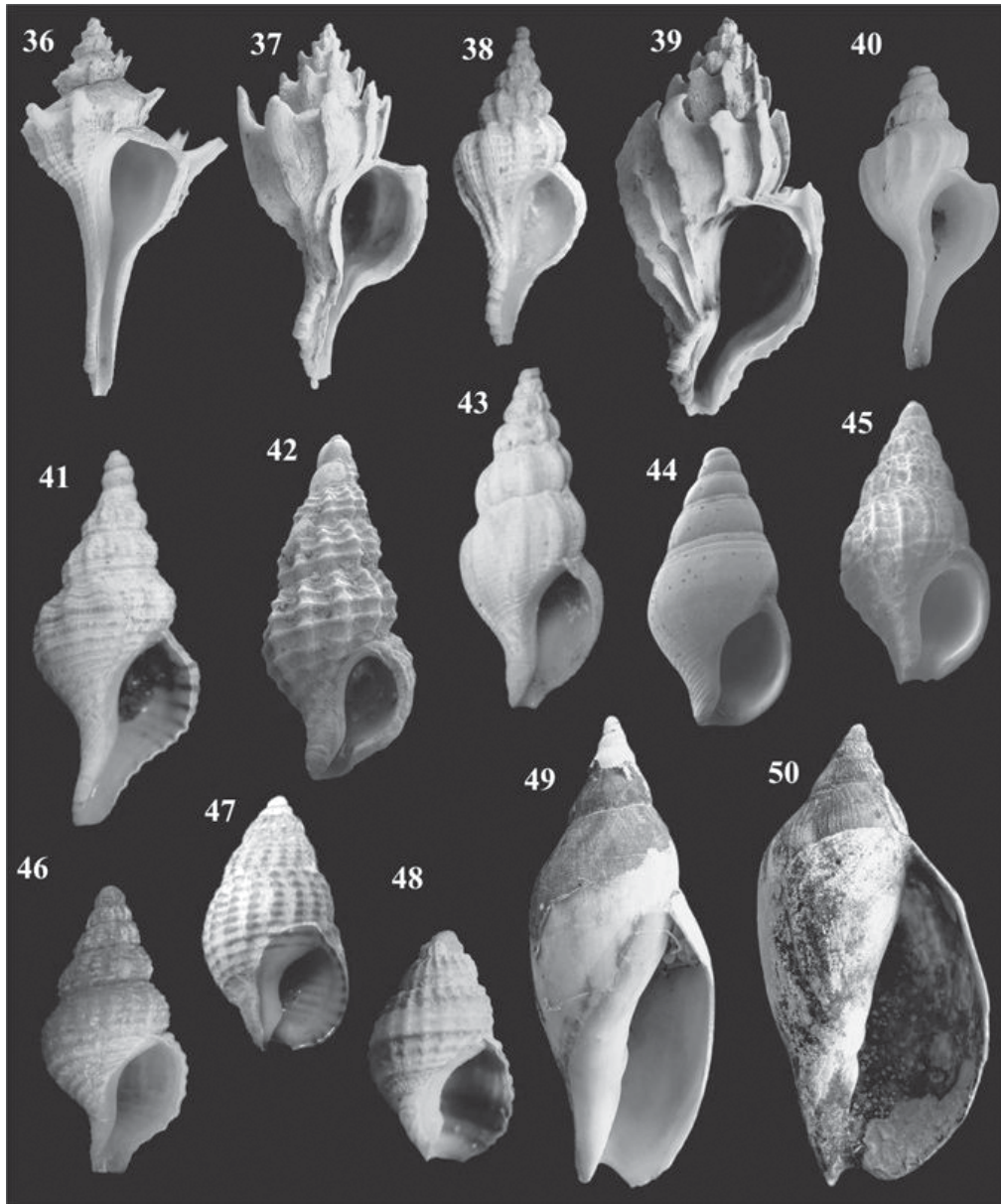


FIGURE 4: General view of the studied specimens. Number indicates UCCC Museum reference.

FIGURA 4. Vista general de los especímenes estudiados. Los números indican la referencia del Museo UCCC.

(36) *Trophon acanthodes* Watson, 1882, Stn. 30, 49.71 x 26.44 mm, 328582; (37) *Trophon bahamondei* McLean & Andrade, 1982, Stn. 42, 37.82 x 19.05 mm, 32583; (38) *Trophon pallidus* Broderip, 1832, Stn. 42, 12.50 x 5.04 mm, 32584; (39) *Trophon plicatus* Lightfoot, 1786, Stn. 20, 47.02 x 23.37 mm, 32586; (40) *Trophon vangoethemi* Houart, 2003, Stn. 30, 8.05 x 3.82 mm, 32587; (41) *Aeneator fontainei* D'Orbigny, 1841, Stn. 20, 17.70 x 8.15 mm, 32588; (42) *Meteuthria martensi* Strebel, 1905, Stn. 30, 6.54 x 2.78 mm, 32589; (43) *Pareuthria powelli* Cernohorsky, 1977, Stn. 42, 10.89 x 4.73 mm, 32590; (44) *Pareuthria cerealis* Rochebrune & Mabilie, 1885, Stn. 30, 5.95 x 2.75 mm, 32591; (45) *Savatieria coppingeri* Smith, 1881, Stn. 30, 5.65 x 3.04 mm, 32592; (46) *Amphissa cancellata* Castellanos, 1979, Stn. 49b, 11.91 x 5.94 mm, 32594; (47) *Nassarius gayii* Kiener, 1834, Stn. 26, 11.37 x 6.04 mm, 32596; (48) *Nassarius coppingeri* Smith, 1881, Stn. 20, 7.76 x 4.83 mm, 32599; (49) *Adelomelon ancilla* Lightfoot in Solander, 1786, Stn. 27, 103.70 x 38.53 mm, 32600; (50) *Odontocymbiola magellanica* Gmelin, 1791, Stn. 20, 132.50 x 56.93 mm, 32601.

Adelomelon magellanica: Ramírez, 1997: 109, fig. 128.

Cymbiola subnodosa: Carcelles, 1950: 63, pl. 3, fig. 43.

Adelomelon? subnodosa: Castellanos, 1970: 111, pl. 8, fig. 9.

Cymbiola subnodosa: Castellanos & Landoni, 1992: 17, pl. 1, fig. 2.

RECORDS: Station 11, 214 m depth.

REMARKS: Fusiform, thin, somewhat fragile shell, with a short spire of five medium to slightly convex whorls and a large, elongated pyriform aperture, somewhat globose, that represents 2/3 of the total length, with a fine or slightly thickened lip at the edge and a very short, wide siphonal canal. Straight or slightly arched outer columella with three to five oblique folds in the anterior third and a wide callus that is generally not well delimited. Opaque whitish, yellowish, or grayish surface, sometimes with longitudinal zig-zag bands and irregular growth lines, which occasionally disappear. The similar species *O. pescalía* Clench & Turner, 1964, *O. rucciana* Vázquez & Caldini, 1990, and *O. canigiai* Vázquez & Caldini, 1992 have higher spires and, in the case of *O. pescalía*, a spiral sculpture.

DISTRIBUTION: From the coast of Chiloé to the Strait of Magellan and Falkland/Malvinas Islands, to Río de la Plata in the Atlantic (Castellanos & Landoni 1992), from 10 to 200 m depth.

Family Cancellariidae Forbes & Hanley, 1853

Genus *Admete* Möller, 1842

Admete schythei Philippi, 1855

(Fig. 5.51)

Cancellaria schythei Philippi, 1855: 208; Philippi, 1856: 164.

Admete schythei: Ramírez, 1997: 137, fig. 160; Forcelli, 2000: 106, fig. 310.

RECORDS: Stations: 11, 20, and 30; between 169 and 252 m depth.

REMARKS: Thin white shell, with six convex whorls, each one having numerous, marked spiral cords, in the form of a fine wave on the outer lip. External columella with an oblique

fold. In form and sculpture, very similar to *Admete magellanica* Strebel, 1905, which has two or three folds on the outer columella. Although it is somewhat similar in form and contour to some species of the family Diaphanidae such as *Toledonia vagabunda* Mabilie, 1885 and *T. bullata* Gould, 1847, these have a very evident columellar fold that forms a tooth. Castellanos & Landoni (1992) compare it with *Admete australis* Philippi, 1855, which has a clearly stronger sculpture.

DISTRIBUTION: Strait of Magellan (Ramírez 1997) and southern Patagonia, Argentina (Carcelles & Williamson 1951). Bathymetric range: 85 m (Philippi 1855). Its range is extended between 169 and 252 m and its northernmost distribution in the Pacific from 42°S.

Family Turridae Swainson, 1840

Genus *Oenopota* Mörch, 1852

Oenopota magellanica Martens, 1881

(Fig. 5.52)

Bela magellanica: Strebel, 1905a/b: 586, pl. 23, figs. 48a-c; Ramírez, 1997: 155, fig. 182.

Mangelia magellanica: Castellanos, 1970: 136, pl. 9, fig. 11 (as *Mangilia*); Castellanos & Landoni, 1993b: 24, pl. 1, fig. 4; Forcelli, 2000: 111, fig. 328; Linse, 2002: 88, pl. 11, figs. 9.1.1-87, 88.

RECORDS: Stations: 20, 30, and 35; between 145 and 252 m depth.

REMARKS: Rosy white color, with six convex whorls covered by thick, low oblique axial costas and weak growth lines; lacking a spiral sculpture. The similar species *Oenopota lateplicata* Strebel, 1905, is more fusiform, has a more elongated neck and aperture, and diminutive spiral striae. *Agladrillia fuegiensis* Smith, 1888 has a higher spire with more than eight whorls, which are less convex.

DISTRIBUTION: From 45°S at 246 m (Osorio *et al.* 2006). Also in the Strait of Magellan, Tierra del Fuego, to 35°S in Argentina (Castellanos & Landoni 1993b) in a bathymetric range from 33 to 145 m (Linse 2002). The northern limit of its distribution is extended from 42°S and its depth to 252 m.

Genus *Drillia* Gray, 1838
Drillia janseni Strebel, 1905
(Fig. 5.53)

Drillia janseni Strebel, 1905: 580, pl. 22, figs. 25-26a-c; Castellanos, 1970: 133, pl. 10, fig. 7; Castellanos & Landoni, 1993b: 11, pl. 1, fig. 3; Forcelli, 2000: 107, fig. 314.

Clavus janseni: Ramírez, 1997: 142, fig. 165.

RECORDS: Stations 11, 20, 27, 30, 35, 43, and 49; between 22 and 252 m depth.

REMARKS: Light yellowish-brown shell, with a high spire of eight convex whorls, covered by spiral cords crossed by thick axial grooves, which give it a granulated aspect. The spiral cords are two per whorl, tending to be three in the last whorl, unlike *Drillia suxdorfi* Strebel, 1905, which only has one spiral cord. DISTRIBUTION: From 44° to 46°S (Osorio *et al.* 2006) and Isla Madre de Dios (50°S) (Ramírez, 1997) and to 34°S in the Atlantic (Castellanos & Landoni 1993b). Bathymetric range from 62 to 246 m (Osorio *et al.* 2006). This study extends the distribution range in the Pacific from 42°S and its depth range to 252 m.

Drillia suxdorfi Strebel, 1905
(Fig. 5.54)

Drillia suxdorfi Strebel, 1905: 582, pl. 22, figs. 27-27a-b; Castellanos, 1970: 134, pl. 10, fig. 11; Castellanos & Landoni, 1993b: 10, pl. 1, fig. 1; Forcelli, 2000: 108, fig. 315.

Clavus suxdorfi: Ramírez, 1997: 143, fig. 166.

RECORDS: Stations 14, 16, 20, 29, 30, 35, and 37; between 145 and 252 m depth.

REMARKS: Whitish shell, with seven convex whorls, each one covered by a thick spiral cord and another less developed cord over the suture, crossed by axial grooves, giving it the appearance of large granules. *Drillia janseni* Strebel, 1905 differs in the number of spiral cords and because it is more elongated.

DISTRIBUTION: From 44° to 46°S (Osorio *et al.* 2006), from 62 to 230 m depth, farther south, near Isla Madre de Dios (50°S) to Southern Argentina at 35°S (Castellanos & Landoni 1993b). The northern distribution is extended from 42°S at a maximum depth of 252 m.

Superorder Heterobranchia
Order Heterostropha
Family Pyramidellidae Gray, 1840
Genus *Eulimella* Forbes in Gray, 1847
Eulimella xenophyes Melvill & Standen, 1912
(Fig. 5.55)

Eulimella xenophyes: Castellanos *et al.* 1993: 21, pl. 3, fig. 27; Linse, 1997: 38, fig. H; Forcelli, 2000: 113, fig. 340.

RECORDS: Station 17; 353 m depth.

REMARKS: Smooth, bright white shell, with approximately seven convex whorls and a marked suture, forming a very high spire that increases slightly in thickness toward the base, and a rounded aperture with a fine lip and columellar edge and defined base. It could be confused with some species of the family Eulimidae, which have less convex whorls and a less marked suture, or with *Eulimella xenophyes*, which is distinguished by the typical form of its columella.

DISTRIBUTION: Burdwood Bank, Isla de los Estados, the Argentine Patagonia (Castellanos *et al.* 1993), as well as the Falkland/Malvinas Islands (Linse 1999). From 40 to 600 m depth (Linse 1997). The northernmost site in Chile is at 42°S, this study.

Family Acteonidae D'Orbigny, 1842
Genus *Acteon* Montfort, 1810
Acteon biplicatus Strebel, 1908
(Fig. 5.56)

Odostomia biplicata Strebel, 1908: 65, pl. 1, figs. 9-9a.

Acteon biplicatus: Castellanos *et al.* 1993: 7, pl. 1, fig. 3; Forcelli, 2000: 115, fig. 347.

RECORDS: Station 46; 55 m depth.

REMARKS: High spire, with five slightly convex whorls. Reddish-tan shell, with a sculpture formed by dotted spiral striae, somewhat separated and evident. The last whorl extends a bit and is somewhat elongated, and the outer columella has two protruding, oblique teeth. It is differentiated from *Acteon elongatus* Castellanos, Rolan & Bartolotta, 1987, which has no columellar teeth and a much more elongated aperture.

DISTRIBUTION: From Tierra del Fuego to 43°S and Falkland/Malvinas Islands in the Atlantic (Castellanos & Landoni 1993a, 1993b). Bathymetric range from 16 to 152 m (Strebel 1908). This study constitutes the northernmost site in Chile (43°S).

Order Pulmonata
Family Chiliniidae Gray, 1828
Genus *Chilina* Gray, 1840
Chilina patagonica Sowerby, 1841
(Fig. 5.57)

Chilina patagonica: Reid & Osorio, 2000: 130, fig. 4I.

RECORDS: Stations 1, 7, and 11; between 196 and 285 m depth. As this species is found in freshwater and estuarine ecosystems, we assume that the specimens obtained in the samples were transported from continental aquatic ecosystems.

REMARKS: Thin, globose yet cylindrical shell, with a low spire and the apex generally eroded; white columella with an evident sinus and a large fold. Light brown coloring with dark broken lines, arranged axially, all covered by a periostracum in which the growth lines are marked. A detailed review of the Chilean species of this genus is lacking (Valdovinos & Stuardo 1995).

DISTRIBUTION: From Puerto Montt to Isla Picton (Strebel 1907 in Reid & Osorio 2000), in low-salinity waters (5‰), near river mouths (Reid & Osorio 2000). In this study, it was found at 285 m depth in the waters near Estero Reloncaví.

CLASS BIVALVIA
Subclass Protobranchia
Order Nuculoida
Family Nuculidae Gray, 1824
Genus *Ennucula* Iredale, 1931
Ennucula grayi D'Orbigny, 1846
(Fig. 5.58-59)

Nucula grayi D'Orbigny, 1846: 625.
Ennucula grayi: Dell, 1964: pl. 2, fig. 3-4; Soot-Ryen, 1959: 13, pl. 1, fig. 3; Ramorino, 1968: 186-189, pl. 1, fig. 2, pl. 4, fig. 4; Ramírez, 1993: 21, fig. 6; Villarroel & Stuardo, 1998: 133, figs. 8, 70-71, 73, 107-109; Forcelli, 2000: 143, fig. 456; Osorio & Reid, 2004: 79, fig. 2h.

RECORDS: Stations 1, 7, 8, 14, 15, 16, 19, 20, 27, 29, 30, 35, 37, and 43; bathymetric range of 22 to 285 m.

REMARKS: Suboval shell, inflated, smooth with fine growth lines. Olive green periostracum. The posterior end is more oblique than the anterior end. Hinge with 9-19 anterior and 3-9 posterior teeth; oblique chondrophore. Villarroel & Stuardo (1998) indicate that *E. puelcha* D'Orbigny, 1842 is less concave and has an elevated lunule. Also, *E. grayi* has a thinner, more elongated shell with less evident umbos.

DISTRIBUTION: From Coquimbo (31°S) to the Strait of Magellan; on the Atlantic coast, to 45°S (Villarroel & Stuardo, 1998). Linse (1997) recorded this species from 63 to 665 m depth, but Villarroel & Stuardo (1998) to 772 m. The bathymetric range is increased from 22 m.

Familia Yoldiidae Habe, 1977
Genus *Yoldiella* Verrill & Bush, 1897
Yoldiella chilénica Dall, 1908
(Fig. 5.60-61)

Yoldiella chilénica Dall, 1908: 380; Soot-Ryen, 1959: 15; Dell, 1972: 23, figs. 12-13; Bernard, 1983: 14; Ramírez, 1993: 35, fig. 25; Villarroel & Stuardo, 1998: 152, figs. 123-124; Forcelli 2000: 144, fig. 462.

RECORDS: Station 20; 252 m depth.

REMARKS: Small, compressed, elliptical shell. Short, rounded anterior end; straight, elongated posterior end. Smooth surface, with fine concentric growth lines. Light brown periostracum. Hinge with two more anterior than posterior teeth. Soot-Ryen (1959) indicates that it is closely related to *Yoldia indolens* Dall, 1908, possibly belonging to the same species, since Bernard (1983) included *Y. indolens* as *Y. chilénica*. However, Villarroel & Stuardo (1998) consider them to be distinct species, since *Y. indolens* has the same number of anterior and posterior teeth. DISTRIBUTION: From Golfo Ancud (42°S) to the Strait of Magellan (53°S) (Villarroel & Stuardo 1998, Linse 1999). Villarroel & Stuardo (1998) recorded this species from 70 to 722 m depth.

Family Mallettiidae H. Adams & A. Adams, 1858
Genus *Malletia* Desmoulins, 1832
Malletia chilensis Desmoulins, 1832
(Fig. 5.62-63)

Malletia chilensis: Soot-Ryen, 1959: 16, figs. 1; Dell,

1964: 148; Ramorino, 1968: 191, pl. 1, fig. 1, pl. 4, fig. 1; Bernard, 1983: 10; Ramírez, 1993: 23, fig. 8; Villarroel & Stuardo, 1998: 155-157, figs. 17, 50-53, 56, 91-92, 133, 146-147; Forcelli, 2000: 145, fig. 464.

RECORDS: Stations 26 and 43; between 70 and 80 m depth.

REMARKS: Thin, compressed, oblong shell. Surface with delicate radial striae and olive green to tan periostracum. Rounded posterior end, slightly truncate anterior end, and an anterior cardinal keel extending to the adductor. Nearly straight hinge with 3-7 anterior and 14-40 posterior teeth. Ramorino (1968) and Bernard (1983) hold that *M. chilensis* and *M. inequalis* Dall, 1908 should be considered to be synonyms. However, Villarroel & Stuardo (1998) indicate that they are different species, as *M. inequalis* has a much larger anterior than posterior zone, a rounded anterior dorsal edge, and lacks an escutcheon.

DISTRIBUTION: From Coquimbo (30°S) to Canal Desertoires (42°), from 1 to 240 m in depth (Villarroel & Stuardo 1998). Ramírez (1993) reports it to Magellan.

Family Tindariidae Verrill & Bush, 1897
Genus *Tindariopsis* Verrill & Bush, 1897
Tindariopsis sulculata Gould, 1852
(Fig. 5. 64-65)

Nucula striata King & Broderip, 1832: 337 (non Lamarck, 1805)

Tindaria striata: Carcelles, 1950: 73, pl. 3, fig. 63; Forcelli, 2000: 143, fig. 457.

Tyndaria striata: Castellanos, 1970: 194, pl. 14, fig. 4.
Nucula sulculata Gould, 1852: 424, Atlas pl. 37, fig. 539a, c.

Tindaria sulculata: Soot-Ryen, 1959: 19; Ramírez, 1993: 27, fig. 14.

Tindariopsis sulculata: Villarroel & Stuardo, 1998: 144, fig. 144; Osorio & Reid, 2004: 79, fig. 2K.

RECORDS: Stations 20, 26, 27, 30, and 42; between 22 and 252 m depth.

REMARKS: Solid, triangular, inflated shell. Strong, marked regular concentric ribs on the surface and light tan to very dark brown periostracum. Rostrate posterior margin and anterior dorsal, oblique and nearly straight. Hinge with small teeth, 11 anterior

and 16 posterior. Nearly quadrangular pallial sinus. According to Bernard (1983), the name of the species *Tindaria striata* King & Broderip, 1832 is doubtful, for which it is considered to be a synonym. There is also doubt as to the real position of the genus in the family Tindariidae, as mentioned in Osorio & Reid (2004), or in the families Mallettiidae or Nuculanidae due to the position of the heart (Villarroel & Stuardo 1998). Very similar to *Nuculana cuneata* Sowerby, 1833, which has stronger hinge teeth. The concentric ribs do not reach the edges and the posterior edge is generally less truncate. It also resembles *Tindaria virens* Dall, 1890, which is smaller, has a non-rostrate posterior end, and weaker concentric ribs.

DISTRIBUTION: Villarroel and Stuardo (1998) recorded specimens from 34° to 53°S. On the Atlantic coast, from Río de la Plata (Castellanos 1970) to the Falkland/Malvinas Islands (Linse 1999). From 60 to 237 m depth (Osorio & Reid 2004). In this study, specimens were recorded from 22 m depth.

Genus *Tindaria* Bellardi, 1875
Tindaria virens Dall, 1890
(Fig. 5. 66-67)

Malletia virens Dall, 1890: 254, pl. 13, fig. 3.

Tindaria virens: Soot-Ryen, 1959: 18, fig. 18-19; Ramírez, 1993: 28, fig. 15; Villarroel & Stuardo, 1998: 158, figs. 52, 54, 55, 93-96, 119, 120; Forcelli 2000: 143, fig. 458; Osorio & Reid, 2004: 80, fig. 2i.

RECORDS: Stations 14, 17, and 18; between 230 and 353 m depth.

REMARKS: Small, triangular, inequilateral, inflated shell, with a shorter anterior than posterior end and a nearly straight, oblique posterior dorsal margin. Externally, with a yellowish or light tan periostracum and a sculpture formed by regular concentric ribs. Hinge with numerous teeth in an inverted V, with more posterior (up to 18) than anterior (up to 13); unmarked palleal line. Similar to *Tindariopsis sulculata* Gould, 1852, a larger, more rostrate species with more marked ribs.

DISTRIBUTION: From Seno de Reloncaví to the Magellan Region (Soot-Ryen 1959). According to Osorio & Reid (2004), the bathymetric range is 204-750 m, although Villarroel & Stuardo (1998) recorded specimens from 70 m depth.

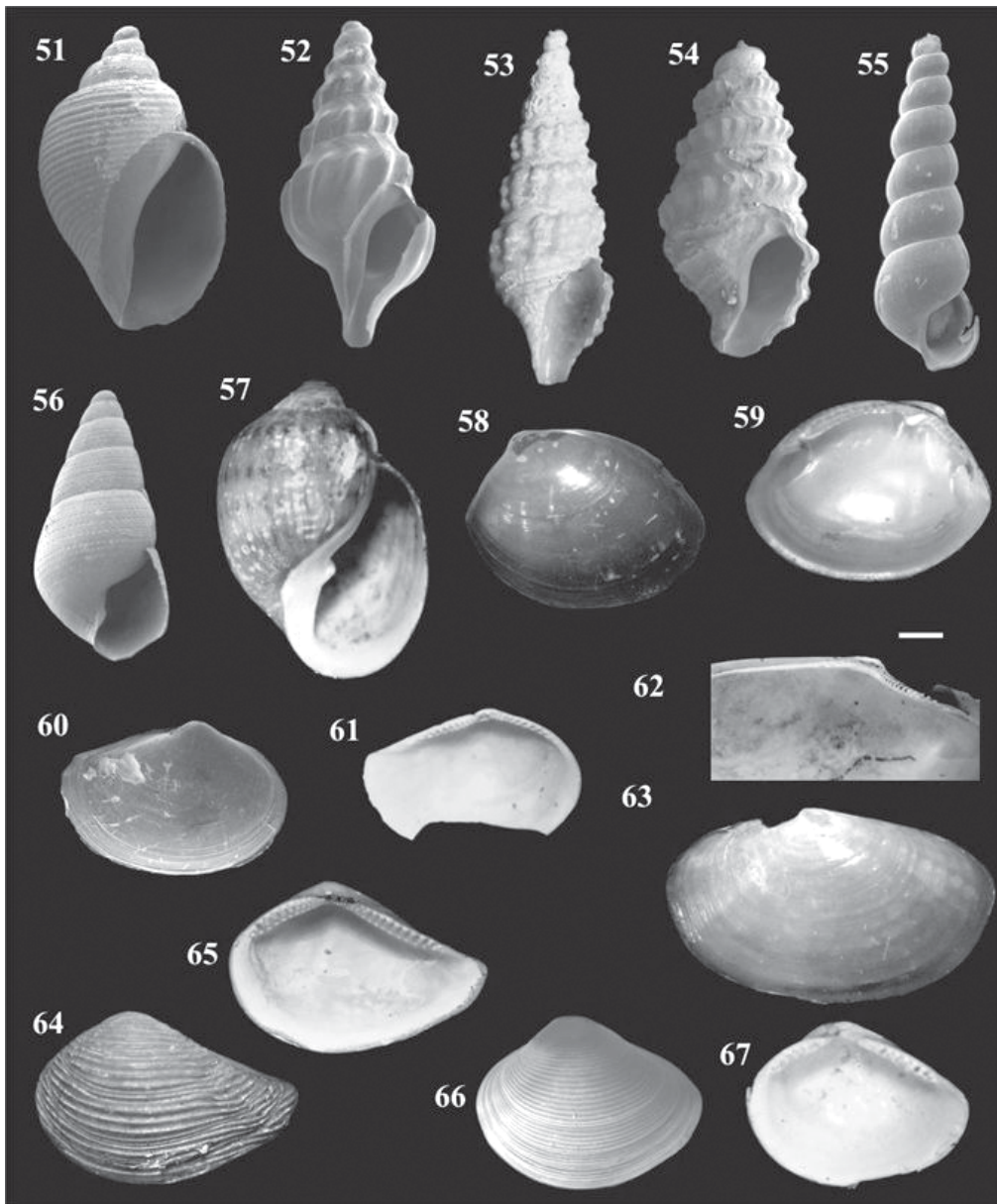


FIGURE 5: General view of the studied specimens. Number indicates UCCC Museum reference.

FIGURA 5. Vista general de los especímenes estudiados. Los números indican la referencia del Museo UCCC.

(51) *Admete schythei* Philippi, 1855, Stn. 42, 7.03 x 4.23 mm, 32602; (52) *Oenopota magellanica* Martens, 1881, Stn. 20, 5.65 x 2.54 mm, 32605; (53) *Drillia janseni* Strebel, 1905, Stn. 11, 13.06 x 4.30 mm, 32607; (54) *Drillia suxdorfi* Strebel, 1905, Stn. 30, 7.80 x 3.49 mm, 32610; (55) *Eulimella xenophyes* Melville & Standen, 1912, Stn. 17, 4.39 x 1.48 mm, 32612; (56) *Acteon biplicatus* Strebel, 1908, Stn. 15, 4.18 x 1.79 mm, 32613; (57) *Chilina patagonica* Sowerby, 1841, Stn. 1, 17.25 x 12.22 mm, 32614; (58-59) *Ennucula grayi* D'Orbigny, 1846, Stn. 43, 17.07 x 13.54 mm, 32616; (60-61) *Yoldiella chilena* Dall, 1908, Stn. 20, 5.64 x 3.80 mm, 32619; (62-63) *Malletia chilensis* Desmoulin, 1832, Stn. 42, 14.14 x 8.21 mm, 32620; (64-65) *Tindariopsis sulculata* Gould, 1852, Stn. 42, 10.84 x 7.06 mm, 32622; (66-67) *Tindaria virens* Dall, 1890, Stn. 14, 4.69 x 3.57 mm, 32623. Scale bar: 1 mm (L).

Subclass Pteriomorpha
Order Arcoida
Family Limopsidae Dall, 1895
Genus *Limopsis* Sassi, 1827
Limopsis marionensis Smith, 1885
(Fig. 6. 68-69)

Limopsis marionensis Smith, 1885: 254, pl.18, figs. 2-26; Dell, 1990: 19, figs. 25-26; Ramírez, 1993: 51, fig. 42; Forcelli, 2000: fig. 469; Osorio & Reid, 2004: 80, fig. 3b.

Limopsis jousseaumei: Thiele, 1912: 228 (text), pl. 17, fig. 14b; Carcelles, 1950: 75, pl. 4, fig. 67; Powell, 1951: 78; Stuardo, 1962: 7, figs. 1-6.

RECORDS: Stations 1, 8, 14, 15, 16, 17, 18, and 20; bathymetric range of 192 to 353 m.

REMARKS: Large, thick shell, with a variable degree of obliquity. Straight, oblique dorsal edges that meet at the umbo. Outer surface with concentric and very fine radial striae; hairy periostracum with dense brown hairs. Slightly curved hinge with around six teeth on each side of the fossette. The Antarctic species *L. hirtella* Rochebrune & Mabille, 1889 is similar, but rounded and more or less equilateral.

DISTRIBUTION: Stuardo (1962) recorded it off the coasts of Algarrobo (33°S). According to Osorio & Reid (2004), it is found from Seno de Reloncaví to Magellan. The Atlantic coast and islands surrounding the Antarctic (Zelaya 2005). From 27 to 1674 m depth (Dell 1990).

Family Philobryidae Bernard, 1897
Genus *Philobrya* Carpenter, 1872
Philobrya brattstromi Soot-Ryen, 1957
(Fig. 6. 70)

Philobrya brattstromi: Soot-Ryen, 1959: 22, pl. 1, fig. 6; Ramorino, 1968: pl. 1, figs. 5-6, pl. 5, figs. 2, 4; Ramírez, 1993: 58, fig. 51; Forcelli, 2000: 147, fig. 473.

RECORDS: Station 42; 130 m depth.

REMARKS: Small oval shell, inequilateral and oblique. White, with pronounced radial ribs and a periostracum that extends beyond the shell. Very short anterior and slightly convex or straight dorsal margin. The Antarctic species *P. sublaevis* Pelseneer, 1903 and *Philobrya wandelesis* Lamy, 1906 are similar, although the first is rounded and equilateral,

whereas the second presents a subquadrangular shell with an evident umbo and rectilinear dorsal edge (anterior and posterior).

DISTRIBUTION: From Canal de Chacao to Seno Reloncaví (41°S) (Soot-Ryen, 1959); Ramorino (1968) extended the record to Valparaíso. Ramírez (1993) recorded specimens from 30 to 70 m depth. This study widens the geographic distribution to 43°S (Golfo de Corcovado) and the bathymetric range to 130 m.

Order Mytiloida
Family Mytilidae Rafinesque, 1815
Genus *Aulacomya* Mörch, 1853
Aulacomya atra Molina, 1782
(Fig. 6. 71)

Mytilus ater Molina, 1782: 202-203.

Aulacomya magallanica: Carcelles, 1950: 76, pl. 4, fig. 69; Castellanos, 1970: 214, pl. 17, fig. 7.

Aulacomya ater ater: Dell, 1964: 175-177; Dell, 1971: 171.

Aulacomya ater: Soot-Ryen, 1955, 33-34, pl. 1, fig. 6; Soot-Ryen, 1959: 26-27; Osorio & Bahamonde, 1970: 192; Marincovich, 1973: 8, fig. 3; Osorio *et al.* 1979: 22-24, fig. 24; Bernard, 1983: 17-18; Forcelli, 2000: 148, fig. 477; Reid & Osorio, 2000: 131, fig. 5F; Aldea, & Valdovinos, 2005: 392 (key), fig. 10E.

Aulacomya atra: Reid & Osorio, 2000: 132, fig. 54a, b.

RECORDS: Station 46; 55 m depth.

REMARKS: Thick mytiliform valve, with tan to purplish black periostracum. Convex, rounded dorsal edge; very concave ventral edge. Hinge with one single tooth. It is distinguished from other mytilids by strong radial ribs and marked growth lines. Juvenile specimens can be confused with *Perumytilus purpuratus* Lamarck, 1819, but the yellow valves contrast with the brown to black periostracum of *P. purpuratus*, which also has twice as many ribs on the surface (Reid & Osorio 2000).

DISTRIBUTION: From Callao (Peru) to the Strait of Magellan, Canal Beagle, and Juan Fernández Archipelago (Osorio & Reid 2000). On the Atlantic coast, to southern Brazil and the Falkland/Malvinas Islands (Osorio 2002). Specimens have been recorded from 40 (Soot-Ryen 1959) to 79 m depth (Dell 1964).

Genus *Choromytilus* Soot-Ryen, 1952
Choromytilus chorus Molina, 1782
(Fig. 6. 72)

Mytilus chorus Molina, 1782: 202.

Choromytilus chorus: Soot-Ryen, 1955: 31, pl. 2, figs. 7-8; Soot-Ryen, 1959: 26; Osorio *et al.* 1979: 24-25, fig. 26; Bernard, 1983: 18; Ramírez, 1993: 66, fig. 60; Reid & Osorio, 2000: 131, fig. 5f; Aldea & Valdovinos, 2005: 393 (key), fig. 10F.

RECORDS: Station 1; 285 m depth.

REMARKS: Thick mytiliform valve; considered to be the largest (186-300 mm) mytilid along the Chilean coast (Osorio 2002). Angular dorsal edge in the central portion and slightly concave ventral edge. Variable dark periostracum, from blue to purple. External characteristics similar to *Mytilus chilensis* Hupé, 1854. However, the *C. chorus* hinge presents one tooth on the right valve and two on the left, whereas *M. chilensis* has numerous, smaller teeth. DISTRIBUTION: From Callao (Perú) to the Strait of Magellan, Canal Beagle. Including Juan Fernández Archipelago. On the Atlantic coast, to southern Brazil, including Falkland/Malvinas Islands (Osorio 2002). Preferably in intertidal zones from 4 m to 20 m depth.

Genus *Mytilus* Linnaeus, 1758
Mytilus chilensis Hupé, 1854
(Fig. 6. 73)

Mytilus chilensis Hupé, 1854: 309-310, malacology pl. 5, fig. 4; Osorio *et al.* 1979: 25-26, fig. 27; Ramírez, 1993: 72, fig. 69; Forcelli, 2000: 148, fig. 474; Aldea & Valdovinos, 2005: 393 (key), fig. 10G.

Mytilus magellanicus: Thiele, 1912: 253.

Mytilus patagonicus: Carcelles, 1950: 76, pl. 4, fig. 69.

Mytilus edulis chilensis D'Orbigny, 1847: 646, pl. 85, figs. 12-13; Soot-Ryen, 1959: 24-25; Dell, 1964: 174; Osorio & Bahamonde, 1970: 191; Dell, 1971: 170-171; Reid & Osorio, 2000: 131, figs. 5d, e.

Mytilus edulis: Soot-Ryen, 1955: 19-22, pl. 1, figs. 1-2, 10-11.

RECORDS: Station 14; 230 m depth (shell probably transported from the intertidal zone).

REMARKS: Elongated shell, with a blackish to purplish tan periostracum and a smooth surface, unlike the

other mytilids (*e.g.* *A. atra*, *P. purpuratus*). Angular dorsal edge and nearly straight ventral edge; straight umbo. Hinge with numerous irregular teeth, which distinguish it from the most similar species *Choromytilus chorus* Molina, 1782.

DISTRIBUTION: *Mytilus* has a bipolar distribution (Reid and Osorio 2000). Its sub-species *M. edulis chilensis* can be found from Iquique to the Beagle Channel (20-54°S) along the Pacific coast, and up to northern Brazil on the Atlantic coast (Reid and Osorio 2000). Mainly from 5 to 10 m depth (Reid & Osorio 2000).

Order Ostreoida

Family Pectinidae Rafinesque, 1815

Genus *Zygochlamys* Ihering, 1907

Zygochlamys patagonica King & Broderip, 1832
(Fig. 6. 74-75)

Pecten patagonica King & Broderip, 1832: 337; Carcelles, 1950: 77, pl. 4, fig. 72.

Chlamys patagonica: Soot-Ryen, 1959: 29; Osorio *et al.* 1979: 28, fig. 30; Waloszek, 1984: 218: pls. 1-2, 5-9; Ramírez, 1993: 88, fig. 85; Forcelli, 2000: 152, fig. 492.

Zygochlamys patagonica: Reid & Osorio, 2000: 134, fig. 40.

Chlamys lischkei: Bernard, 1983: 25; Ramírez, 1993: 87, fig. 83; Forcelli, 2000: 152, fig. 491.

Pecten patriae: Carcelles, 1944: 275, pl. 8, figs. 71-72; Carcelles, 1950: 76, pl. 4, fig. 71.

Chlamys patriae: Soot-Ryen, 1959: 29; Osorio & Bahamonde, 1970: 193; Castellanos, 1970: 203, pl. 11, figs. 9-10; Ramírez, 1993: 89, fig. 86.

RECORDS: Stations 1, 20, 30, 35, 42, 43, 46, 47, 49, and 49b; between 55 and 285 m depth.

REMARKS: Rounded oval shell with solid valves, with similar closed and somewhat inflated ears, the anterior being larger than the posterior. Variable outer sculpture formed by 30-40 radial ribs, which can be fine, have scales or dots, or be thicker and quadrangular, with visible concentric striae, mainly in the spaces between. Small fragile teeth on the edge of the right valve, under the anterior ear. Variable coloring, from yellowish to dark reddish. *C. amandi* Soot-Ryen, 1959 is a similar species that was described in Calbuco and whose validity is being questioned. *C. vitrea* King & Broderip, 1832

presents flattened, cuadrangular radial ribs without scales.

DISTRIBUTION: From Chiloé to the Strait of Magellan, Tierra del Fuego, and Cape Horn (42°-56°S) (Osorio & Reid 2000), from 20 to 275 m depth (Osorio & Reid 2004, Osorio *et al.* 2006).

Family Propeamussidae Abbott, 1954
Genus *Delectopecten* Stewart, 1930
Delectopecten vitreus Gmelin, 1791
(Fig. 6. 76-77)

Ostrea vitrea Gmelin, 1791: 3328.

Pseudamussium gelatinosum: Carcelles, 1950; pl. 4, fig. 73.

Cyclopecten vitreus: Bernard, 1983: 26; Ramírez, 1993: 82, fig. 77; Forcelli, 2000: 153, fig. 498; Osorio & Reid, 2004: 80, fig 3d.

RECORDS: Stations 20, 43, and 49; bathymetric range of 79 to 238 m.

REMARKS: Small, thin, nearly circular shell; whitish and semitransparent. Very uneven ears, with the anterior being longer than the posterior. Surface with fine, regular concentric striae that are crossed with small scaly radial ribs. Similar to the Antarctic *Cycloclamys hexagonalis* Powell, 1958, which has finer, although more evident, radial ribs with narrower spaces and less regularity. Various similar species, such as *D. fosterianus* Powell, 1933, *Cycloclamys notalis* Thiele, 1912, and *C. gaussianus* Thiele, 1912 are reported for the Antarctic area; a modern, detailed review of these species is lacking.

DISTRIBUTION: Wide global distribution. In southern Chile, from 44°S (Osorio & Reid 2004) to the Strait of Magellan. On the Atlantic coast, to Santa Cruz, Argentina. From 27 to 4312 m depth (Grau 1959 in Osorio & Reid 2004).

Subclass Heterodonta
Order Veneroida
Family Lucinidae Fleming, 1828
Genus *Lucinoma* Dall, 1901
Lucinoma antarctica Philippi, 1855
(Fig. 6. 78-80)

Lucina antarctica Philippi, 1855: 209.

Lucinoma antarctica: Bernard, 1983: 29; Forcelli, 2000: 154, fig. 499.

Diplodonta lamellata Smith, 1881: 38, pl. 5, figs. 1a-c.

Lucinoma lamellata: Carcelles, 1950: 79, pl. 5, fig. 81; Soot-Ryen, 1959: 41, pl. 1, fig. 12; Ramírez, 1993: 99: 97; Osorio & Reid, 2004: 82, 3H; Holmes *et al.* 2005: 679, figs. 12-17.

RECORDS: Stations: 1, 7, 8, 15, 16, and 47; bathymetric range of 192 to 285 m.

REMARKS: Rounded shell, especially the anterior portion; whitish in color, with marked concentric lamellas raised on the surface. Hinge with two teeth in each valve, the anterior of the right valve is bifid, as is the posterior of the left valve. According to Holmes *et al.* (2005), it is similar to *Lucinoma aequiozonata* Stearns, 1981, which was possibly recorded erroneously at 38°S and is distinguished by its nearly straight, truncate posterior dorsal margin, the rectangular anterior edge, and a sculpture with widely spaced lamellas.

DISTRIBUTION: From Seno Reloncaví (41°S) to Magellan (53°S) (Soot-Ryen 1959). Isla Madre de Dios (50°S) to Cape Horn (56°S) (Ramírez 1993). The bathymetric range is from 62 to 500 m (Osorio & Reid 2004, Osorio *et al.* 2006).

Family *Thyasiridae* Dall, 1901
Genus *Thyasira* Lamarck, 1818
Thyasira magellanica Dall, 1901
(Fig. 6. 81)

Thyasira magellanica: Carcelles, 1950: 78, pl. 4, fig. 80; Ramírez, 1993: 107, fig. 104; Forcelli, 2000: 154, fig. 502.

RECORDS: Stations 19 and 35; between 80 and 145 m depth.

REMARKS: Small, white shell, with weak growth lines on the outer surface. Shallow radial groove going from the umbos to the posterior margin, which distinguishes it from the similar *Thyasira falklandica* Smith, 1885. According to Oliver & Sellanes (2005), it is smaller than *Thyasira fuegiensis* Dall, 1890; has a more elevated, elongated shape; less marked clefts; and the posterior radial groove is closer to the posterior dorsal margin.

DISTRIBUTION: Southern Chile (Soot-Ryen 1959); Canal Trinidad (50°) to Santa Inés Island (54°S) (Bernard 1983). From 190-350 m (Soot-Ryen 1959) to 30-60 m depth (Ramírez 1993).

Family Neoleptonidae Thiele, 1934
Genus *Neolepton* Monterosato, 1875
Neolepton hupei Soot-Ryen, 1957
(Fig. 6. 82-84)

Neolepton hupei: Soot-Ryen, 1959: 47, pl. 2, fig. 18; Dell, 1964: 211, fig. 1, N° 7; Zelaya & Ituarte, 2004: 129, fig. 8.

RECORDS: Stations 30 and 42; between 130 and 169 m depth.

REMARKS: Solid, elliptical shell, equilateral and moderately high. Lustrous white outer surface with scarce striae. Right hinge with three anterior cardinal and two posterior lateral teeth; left hinge with two anterior cardinal and one posterior lateral tooth. Very similar to *Neolepton georgianum* Zelaya & Ituarte, 2003, but *Neolepton hupei* is larger and the shell is more equilateral (Zelaya & Ituarte 2004).

DISTRIBUTION: Isla Quenu, Isla Chidguapi (41°S), Golfo Ancud to Canal Beagle, including the Falkland/Malvinas Islands (Linse 1999). From 15 to 286 m depth (Zelaya & Ituarte 2004).

Family Carditidae Fleming, 1828
Genus *Cyclocardia* Conrad, 1867
Cyclocardia compressa Reeve, 1843
(Fig. 7. 85-87)

Cardita compressa Reeve, 1843: 194.
Cyclocardia compressa: Soot-Ryen, 1959: 39; Bernard, 1983: 34; Ramírez, 1993: 151, fig. 148; Forcelli, 2000: 160, fig. 527; Osorio & Reid, 2004: 82, fig. 3e.

RECORDS: Station 11; 214 m depth.

REMARKS: Flattened, oval-triangular shell, with very pointy umbos. Yellowish to olive colored periostracum. Surface with 13-18 radial ribs. Left valve with two cardinal teeth, right valve with one thick central tooth and vestigial lateral teeth. *C. velutinus* Smith, 1881 has a compressed shell and delicate, flat, smooth radial ribs on the surface.

DISTRIBUTION: Ramorino (1968) reported it from Arica to Magellan; also in the Falkland/Malvinas Islands (56°S) (Zelaya 2005), from 3-120 m (Ramírez 1993) to 20-208 m depth (Osorio & Reid 2004).

Cyclocardia velutinus Smith, 1881
(Fig. 7. 88-90)

Cardita velutinus Smith, 1881: 42, pl. 5, fig. 8.
Venericardia velutina: Carcelles, 1950: 77, pl. 4, fig. 78; Castellanos, 1970: 233, pl. 16, figs. 9-10-11.
Cyclocardia velutina: Soot-Ryen, 1959: 39; Dell, 1964: 191.
Cyclocardia velutinus: Bernard, 1983: 35; Ramírez, 1993: 153, fig. 150; Forcelli, 2000: 160, fig. 529; Osorio & Reid, 2004: 83, fig 3F.

RECORDS: Stations 14, 17, 20, 26, 27, 30, 35, 42, 43, 49, and 49b; between 22 and 353 m depth.

REMARKS: Thick, globose shell. White with thick greenish periostracum. On the surface, about 20 elevated radial ribs are ornamented with granulate, rounded nodules. Hinge with one strong central tooth on the right valve, and two cardinal teeth on the left valve. Deep lunule.

DISTRIBUTION: From Arica to Magellan (Soot-Ryen 1959, Ramírez 1993). On the Atlantic coast, to 37°S (Castellanos 1970). Including the Falkland/Malvinas Islands (Linse 1999). From 20 to 345 m depth (Osorio & Reid 2004, Osorio *et al.* 2006).

Family Condylardiidae Bernard, 1897
Genus *Carditella* Smith, 1881
Carditella tegulata Reeve, 1843
(Fig. 7. 91)

Cardita tegulata Reeve, 1843: pl. 9, fig. 48.
Carditella tegulata: Dell, 1964: 194, N° 8; Soot-Ryen, 1959: 40, pl. 1, fig. 11; Marincovich, 1973: 10, fig. 9; Bernard, 1983: 34; Ramírez, 1993: 145, fig. 145; Forcelli, 2000: 159, fig. 526; Reid & Osorio, 2000: 136, fig. 7J.

RECORDS: Stations 20 and 42, at 130 and 252 m depth.
REMARKS: Inequilateral and subtriangular shell. Sculpture with 11-13 raised, scaly outer ribs crossed by concentric striae. Small outer ligament. Very short anterior end, and wide, rounded posterior end. Posterior adductor with a keel. Whitish in color

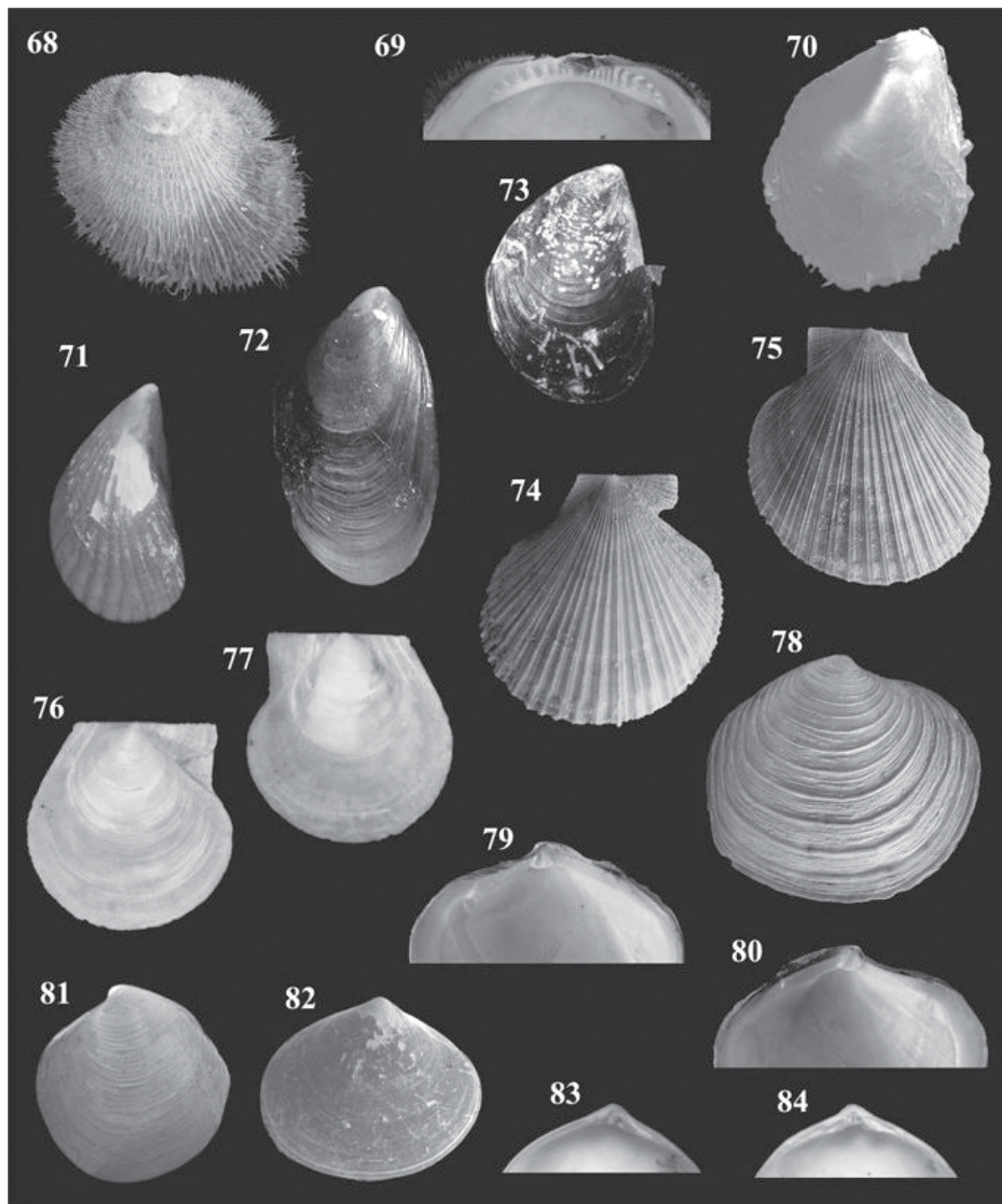


FIGURA 6. Vista general de los especímenes estudiados. Los números indican la referencia del Museo UCCC.

FIGURE 6: General view of the studied specimens. Number indicates UCCC Museum reference.

(68-69) *Limopsis marionensis* Smith, 1885, Stn. 42, 13.63 x 12.78 mm, 32624; (70) *Philobrya brattstromi* Soot-Ryen, 1957, Stn. 42, 3.45 x 2.57 mm, 32625; (71) *Aulacomya atra* Molina, 1782, Stn. 42, 17.08 x 9.59 mm, 32626; (72) *Choromytilus chorus* Molina, 1782, Stn. 1, 27.42 x 14.90 mm, 32627; (73) *Mytilus chilensis* Hupé, 1854, Stn. 14, 14.17 x 9.56 mm, 32629; (74-75) *Zygochlamys patagonica* King & Broderip, 1832, Stn. 42, 40.65 x 38.79 mm, 32630; (76-77) *Delectopecten vitreus* Gmelin, 1791, Stn. 43, 14.37 x 14.06 mm, 32631; (78-80) *Lucinoma antarctica* Philippi, 1855, Stn. 15, 30.91 x 28.09 mm, 32632; (81) *Thyasira magellanica* Dall, 1901, Stn. 19, 3.11 x 2.80 mm, 32634; (82-84) *Neolepton hupei* Soot-Ryen, 1957, Stn. 42, 3.31 x 2.76 mm, 32635.

with periostracum. Similar to *Carditella pallida* Smith, 1881, which has more central umbos than *Carditella tegulata* (umbos oriented towards the anterior portion).

DISTRIBUTION: From Callao (Perú) to the Strait of Magellan (Soot-Ryen 1959, Osorio & Reid 2004). From 10 to 50 m depth (Osorio & Reid 2004). In this study, the species reached maximum depths of 252 m.

Genus *Carditopsis* Smith, 1881
Carditopsis flabellum Reeve, 1843
(Fig. 7. 92-94)

Cardita flabellum Reeve, 1843: pl. 9, fig. 47; Reeve, 1843: 194.

Carditopsis flabellum: Soot-Ryen, 1959: 40; Ramorino, 1968: 204, pl. 2, fig. 2, pl. 6, figs. 2-3; Bernard, 1983: 35; Ramírez, 1993: 155, fig. 152; Forcelli, 2000: 160, fig. 530.

Carditopsis flabellum flabellum: Dell, 1964: 195, figs. 2-3; Linse, 1997: 59, pl. 2, figs. 5-8; Reid & Osorio, 2000: 136, fig. 7K.

RECORDS: Station 42; 130 m depth.

REMARKS: Subtriangular, solid, inaequilateral shell. Surface with 12-14 radial ribs broken by concentric grooves. Lacking an outer ligament. Hinges with three teeth: one central tooth on the edge of the chondrophore and two divergent teeth united above. Impression of the posterior adductor with a superior keel. Dark olive-green in color. Can be confused with *Carditella tegulata* Reeve, 1843, which has a small visible outer ligament behind the umbo and is more inequilateral.

DISTRIBUTION: From Callao (Peru) to the Strait of Magellan (Linse 1997). From 25 to 250 m depth (Osorio & Reid 2004).

Family Veneridae Rafinesque, 1815
Genus *Tawera* Marwick, 1927
Tawera gayi Hupé, 1854
(Fig. 7. 95-97)

Clausinella gayi: Carcelles, 1944: 287, pl. 13, figs. 97-98; Carcelles, 1950: 80, pl. Carcelles, 1950: 76,

pl. 4, fig. 69, fig. 88; Soot-Ryen, 1959: 58, pl. 3, figs. 26-27; Castellanos, 1970: 251, pl. 22, figs. 12-13-14. *Tawera gayi*: Osorio & Bahamonde, 1970: 203; Dell, 1971: 175; Bernard, 1983: 53; Ramírez, 1993: 220, fig. 207; Linse, 1997: 59; Forcelli, 2000: 167, fig. 565; Reid & Osorio, 2000: 139, fig. 5H.

RECORDS: Station 42; 130 m depth.

REMARKS: Oval, subcircular, rosy whitish shell, with a shorter anterior than posterior end. The outer surface has thick concentric striae, nearly regular. Hinge with three cardinal teeth on each valve. Crenulate internal edge and short pallial sinus.

DISTRIBUTION: From Coquimbo to Canal Beagle, Tierra del Fuego (56°S) (Reid & Osorio 2000). In the Atlantic, from Río Grande Do Sul (Brazil) to the Falkland/Malvinas Islands (Osorio, 2002). Wide bathymetric range, from intertidal zones of 3 m to deep areas of 250 m (Reid & Osorio 2000).

Family Tellinidae Blainville, 1814
Genus *Macoma* Leach, 1819
Macoma inornata Hanley, 1844
(Fig. 7. 98-100)

Macoma inornata: Soot-Ryen, 1959: 62, pl. 4, figs. 34-36; Dell, 1964: 220, pl. 7, figs. 1-2, 4; Ramorino, 1968: 220, pl. 3, fig. 5, pl. 10, figs. 1-2; Ramírez, 1993: 183, fig. 170; Forcelli, 2000: 163, fig. 546; Osorio & Reid, 2004: 83, fig. 3G.

RECORDS: Stations 19, 26, 27, 30, 35, 37, and 43; bathymetric range of 22 to 179 m.

REMARKS: Oval-triangular shell, compressed and fragile. Elongated anterior margin. Surface with fine, growth lines and weak radial lines. Hinge with two central teeth on each valve, one of which is bifid. Whitish in color, with the periostracum on the edge and an evident outer ligament. Deep pallial sinus. Similar in shape and contour to the Semelidae *Cumingia mutica* Sowerby, 1833, which has an internal ligament in a chondrophore.

DISTRIBUTION: From Atacama (Ramorino 1968) to Magellan, the Falkland/Malvinas Islands (Linse 1999). The bathymetric range is 15 to 300 m (Soot-Ryen 1959).

Subclass Anomalodesmata
Order Pholadomyoidea
Family Lyonsiidae Fischer, 1887
Genus *Entodesma* Philippi, 1845
Entodesma cf. *cuneata* Gray, 1828
(Fig. 7. 101)

Entodesma cuneata: Dell, 1972: 29, fig. 23; Marincovich, 1973: 15, fig. 25; Ramírez, 1993: 244, fig. 241; Forcelli, 2000: 170, fig. 580; Aldea & Valdovinos, 2005: 394 (key), fig. 11L.

RECORDS: Stations 20 and 42; 130 and 252 m depth.

REMARKS: Fragile, irregular shell. Short, globose, truncate anterior end; elongated posterior end. Internal ligament covered by a calcareous piece (lithodesma). Aperture or bisso at the posterior end. Typical aperture on the ventral edge. According to Campos & Ramorino (1981), the presence of radial striae on the outer surface of the *Entodesma chilensis* Philippi, 1845 shell is not a determinant characteristic for differentiating it from *Entodesma cuneata*, as stated by Marincovich (1973). Campos & Ramorino (1981) also suggest that the study of both species requires a more detailed analysis for differentiation. Presents affinity with *Entodesma patagonica* D'Orbigny, 1846, reported for the Magellan Region (Linse 1999) with no differentiable characteristics observed for the two species.

DISTRIBUTION: From Ecuador to the Strait of Magellan (Marincovich 1973). Dwells in the intertidal and sublittoral areas (Ramírez 1993). In this study, the specimens are recorded to 252 m.

Family Pandoridae Rafinesque, 1815
Genus *Pandora* Hwass in Chemnitz, 1795
Pandora cistula Gould, 1850
(Fig. 7. 102-103)

Pandora cistula Gould, 1850: 217; Soot-Ryen, 1959: 37; Ramírez, 1993: 242, fig. 247; Forcelli, 2000: 171, fig. 583; Osorio & Reid, 2004: 83, fig. 3C.

RECORDS: Stations 20, 27, and 30; bathymetric range of 22 to 252 m.

REMARKS: Thin, compressed, elongated shell. Short, curved anterior side; long, truncate posterior part. Convex left valve with two oblique keels in the posterior dorsal part. Presents affinity with *Pandora braziliensis* Sowerby II, 1874, although the right valve of *cistula* presents strong biangulation, with irregular radial lines in the central zone that do not reach the umbo.

DISTRIBUTION: From Valparaíso (Ramorino 1968) to Magellan (Linse 1999). From 50 m (Soot-Ryen 1959) to 330 m depth (Osorio & Reid 2004). The record is extended from 22 m.

Family Cuspidariidae Dall, 1886
Genus *Cuspidaria* Nardo, 1840
Cuspidaria cf. *infelix* Thiele, 1912
(Fig. 7. 104)

Cuspidaria infelix Thiele, 1912: 233, pl. 18, fig. 2839, pl. 7, figs. 5-5a-b; Dell, 1964: 230; Osorio & Bahamonde, 1970: 214; Ramírez, 1993: 254, fig. 233; Linse, 1997: 62, fig. H; Forcelli, 2000: 171, fig. 585.

RECORDS: Stations 17 and 20; between 252 and 353 m depth.

REMARKS: Elongated shell, somewhat variable in form. Weak concentric lines and thick posterior prolongation. Of the species that only present concentric sculptures, it is differentiated from *Cuspidaria tenella* Smith, 1907, which is larger, more globose, and has well-marked concentric lines and a proportionally thinner posterior prolongation. *Cuspidaria kerguelensis* Smith, 1885 has strong concentric lamellas. *Cuspidaria patagonica* Smith, 1885 has a longer, thin, straight posterior prolongation or rostrum, unlike *Cuspidaria chilensis* Dall, 1890, which has a very short, wide rostrum.

DISTRIBUTION: Wide distribution around the Antarctic continent, being found in the Antarctic Peninsula and adjacent islands at depths of up to 752 m (Dell 1990); also, Linse (1997) recorded it in Beagle Canal from 60 m depth and Linse (1999) mentions a distribution in the Magellan Region. With this record, the northern distribution is extended to 42°S.

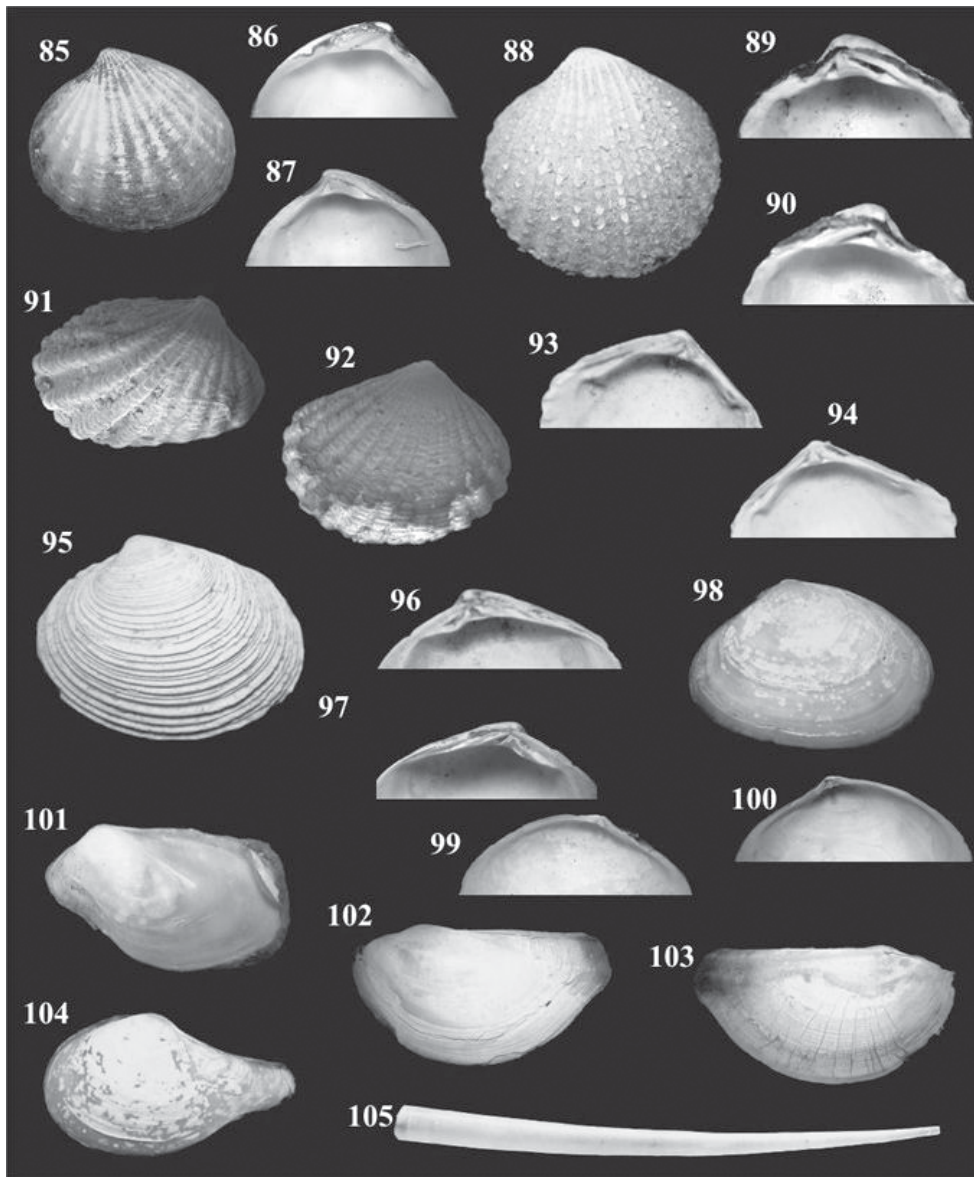


FIGURA 7. Vista general de los especímenes estudiados. Los números indican la referencia del Museo UCCC.

FIGURE 7: General view of the studied specimens. Number indicates UCCC Museum reference.

(85-87) *Cyclocardia compressa* Reeve, 1843, Stn. 20, 9.09 x 8.39 mm, 32637; (88-90) *Cyclocardia velutinus* Smith, 1881, Stn. 20, 15.21 x 14.40 mm, 32639; (91) *Carditella tegulata* Reeve, 1843, Stn. 42, 4.43 x 2.94 mm, 32641; (92-94) *Carditopsis flabellum* Reeve, 1843, Stn. 42, 4.81 x 3.96 mm, 32643; (95-97) *Tawera gayi* Hupé, 1854, Stn. 42, 9.06 x 7.74 mm, 32644; (98-100) *Macoma inornata* Hanley, 1844, Stn. 30, 18.68 x 9.14 mm, 32645; (101) *Entodesma* cf. *cuneata* Gray, 1828, Stn. 20, 12.75 x 7.40 mm, 32647; (102-103) *Pandora cistula* Gould, 1850, Stn. 27, 18.24 x 10.40 mm, 32648; (104) *Cuspidaria* cf. *infelix* Thiele, 1912, Stn. 20, 9.33 x 5.50 mm, 32650; (105) *Rhabdus perceptus* Mabilille & Rochebrune, 1889, Stn. 1, 18.24 x 10.40 mm, 32651.

CLASS SCAPHOPODA

Order Dentaliida

Family Rhabdidae Chistikov, 1975

Genus *Rhabdus* Pilsbry & Sharp, 1897

Rhabdus perceptus Mabilles & Rochebrune, 1889
(Fig. 7. 105)

Dentalium perceptum: Carcelles, 1950: 73; Carcelles & Williamson, 1951: 322.

Rhabdus perceptum: Steiner & Linse, 2000: 18, fig. 4; Steiner & Kabat, 2004: 717; Osorio & Reid, 2004: 84, fig. 2G.

Rhabdus perceptus: Steiner & Kabat, 2001: 449.

RECORDS: Stations 1, 8, and 19; between 80 and 285 m depth.

REMARKS: Large, slightly curved shell. Smooth outer surface with delicate growth lines. Circular apex, simple and complete. It is one of the largest scaphopods in the region (averaging 49.6 mm) (Steiner & Linse 2000). It is distinguishable from *Dentalium majorinum* Rochebrune & Mabilles, 1889, which lacks marked longitudinal striae on the surface.

DISTRIBUTION: From 44°S to Magellanes (Osorio *et al.* 2006), South Atlantic Ocean from 35°S to the Cape Horn Region (Steiner & Linse 2000). From 158 to 993 m depth (Steiner & Linse 2000). In this study, the distribution is extended to Seno Reloncaví (41°S) and the bathymetry is extended to 80 m (Estero Comau, 41°S).

DISCUSSION

A total of 67 species was recorded in the subtidal habitats at the northern end of the Magellanic Province (41°31'–43°49'S): 4% Polyplacophora, 58% Gastropoda, 36% Bivalvia, and 1% Scaphopoda. Of these, 44 were previously cited by Reid & Osorio (2000), Osorio & Reid (2004), and Osorio *et al.* (2006) for the area between Golfo Elefantes (46°30'S) and Boca del Guafo (43° 30'S). The present study incorporates concrete records and descriptions of 23 new species in the area.

Previously, Reid & Osorio (2000) studied the shallow-water marine Mollusca of Estero Elefantes and Laguna San Rafael (45°30'–46°50'S), recording a total of 62 species from depths of up to 15 m. The area studied in Laguna San Rafael corresponds to a low salinity basin that is strongly influenced by glacial

meltwater, whereas Estero Elefantes is a complex fjord system with both brackish and fully marine environments, including sheltered bays and exposed coasts. The authors collected mollusks at 26 stations from intertidal habitats, kelp plants, and by dredging depths of up to 15 m. A total of 62 species (9 Polyplacophora, 33 Gastropoda, 20 Bivalvia) were collected. Osorio & Reid (2004) and Osorio *et al.* (2005) studies considered 42 sampling sites in the eastern area, between Golfo Elefantes (46°30'S) and Golfo de Corcovado (43°30'S), including Estero Cupquelán, Estero Quitralco, Seno Aysén, Canal Puyuhuapi, and Canal Jacaf. These authors recorded a total of 49 species (1 Caudofoveata, 5 Polyplacophora, 19 Gastropoda, 22 Bivalvia, 2 Scaphopoda). As in the case of the Reid & Osorio (2000) study, these authors found a wide range of salinities associated with glacial influences. However, they covered a greater bathymetric range, between 0 and 330 m depth. In general, the taxonomic knowledge of the mollusks in the study area allowed us to identify, without major complications, most of the species. Nonetheless, the taxonomic status of some species clearly needs to be reviewed.

The Polyplacophora have been well studied and can be identified according to Leloup (1956), Kaas & Van Belle (1985), and Castellanos (1988). The Gastropoda can be identified following Castellanos (1990–1992), Castellanos & Landoni (1988–1993), McLean & Andrade (1982), Castellanos *et al.* (1993), Ramírez (1996–1997), Reid & Osorio (2000), and Osorio & Reid (2004). Recent studies of Gastropoda were done to determine groups like Calyptraeidae (Gallardo 1996), Nacellidae (Valdovinos & Rùth 2005), Naticidae (Pastorino 2005a), and Trophininae (Pastorino 2005b). The Bivalvia can be identified without problems by using Soot-Ryen (1959), Ramírez (1993), Villarroel & Stuardo (1998), and Reid & Osorio (2000). In this group, Neoleptonidae (Zelaya & Ituarte 2003, 2004) and Pectinidae (Waloszek 1984) were reviewed more recently, clarifying some taxonomic aspects. Perhaps the best-understood group is Scaphopoda, which has modern reviews (Steiner & Linse 2000, Steiner & Kabat 2001, Steiner & Kabat 2004).

Nevertheless, the identification of many groups remains highly difficult. For example, in Gastropoda, the following families require reviews: Cerithiopsidae, Epitoniidae, Cancellariidae, Pyramidellidae, Acteonidae, and Turridae. The latter

case is especially important, since no works exist on this group, although it is very diverse. Information is missing on some species of the family Trochidae, including *Falsimargarita* sp. cited in the present study and Osorio & Reid (2004). The only studies available of this group are those of Véliz & Vásquez (2000) for northern Chile and Vilvens & Sellanes (2006), which mostly describes new species, and the study by Zelaya (2004) of the Atlantic coast, which cites common species with the Pacific. In the family Buccinidae, the genera *Meteuthria*, *Pareuthria*, and *Savatieria* have not been studied in detail, although *Aeneator* was reviewed by McLean & Andrade (1982). Likewise, background information on the taxonomic status and concrete citations of some species of Nassariidae (*N. coppingeri*, *N. taeniolatus*, *N. miser*) are scarce, as only the review by Cernohorsky (1984) covers the species level. Only one review of the family Volutidae has been done (Clench & Turner 1964) and that was in the Atlantic Ocean.

Some gaps remain in the information on some Bivalvia families, such as Philobryidae, Lyonsiidae, Pandoridae, and Cuspidariidae. Moreover, the variety of species with similar characteristics in a single family, as are the cases of Propeamussidae, Carditidae, and Condyllocardiidae, requires an updated taxonomic review.

According to Reid & Osorio (2000), many authors have discussed the marine biogeographical 'provinces' off the west coast of South America, basing their classifications on various taxonomic groups, ecological systems, and depth ranges. Those referring specifically to mollusks include Dall (1909), Carcelles & Williamson (1951), Stuardo (1964), Dell (1971), Marinovich (1973), and Viviani (1979). Their conclusions were summarized and their data expanded by Brattström & Johanssen (1983); later, Valdovinos *et al.* (2003) discussed this data from a macroecological point of view. In general, there is agreement that two provinces can be recognized off the southeastern Pacific coast: a) a northern, warm-temperate, Peruvian Province (about 2-6° to 42°S) and b) a southern, cold-temperate, Magellanic Province (about 42°S to 56°S). The boundary between these two provinces has most often been placed at the northern end of Isla Chiloe, the end point for the distribution of numerous marine invertebrates (see Valdovinos *et al.* 2003). Some authors suggest that the

biogeographic limit is not sharp, but rather consists of a broad area in which the typical species of each province overlap, resulting in a transitional zone between 30 and 46°S (Brattström & Johanssen 1983). However, Valdovinos *et al.* (2003) showed important distributional breaks in the 40-45° latitudinal band. In this context, our study area is of interest since it lies within this transitional zone (41°31' -43°49'S) and in a region of the Chilean coastline for which distributional data on mollusks is proportionally incomplete.

Osorio & Reid (2000) found an apparent predominance of southern (Magellanic) shallow-water marine Mollusca in the area of Estero Elefantes and Laguna San Rafael, with 30 species (48%) that were strictly Antarctic or Magellanic and another 26 (42%) that were widespread, extending south of our study area. Only five of the species (8%) were strictly Peruvian. Our results show that the subtidal species respond differently when a high proportion of the species are southern (Magellanic) in nature. Of the total of 67 species studied, 45 (67%) are strictly Magellanic or Antarctic and another 16 (24%) are widespread, extending south of our study area. Only 6 of the species (9%) were strictly Peruvian.

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