

Zooplankton in the surrounding waters of the Juan Fernández Archipelago

Zooplankton en las aguas del archipiélago Juan Fernández

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Resumen. Un estudio para el conocimiento de los estadios larvales de *Jasus frontalis* (Milne-Edwards, 1836) ha permitido estimar la composición cualitativa y la estructura

cuantitativa del zooplancton en las aguas del archipiélago Juan Fernández.

Palabras clave: Estadios larvales, *Jasus frontalis*, Chile

In the framework of the research program “Oceanic and coastal Chilean islands” between the Europe-Latin America Center (EULA) of the University of Concepción and the Dipartimento per lo Studio del Territorio e delle sue Risorse (DIPTERIS) of the University of Genoa, one topic concerned the zooplankton of the Archipelago.

The sampling was carried out from February 18 to 21, 2002, to contribute to the study of the larval development of the crayfish *Jasus frontalis* (Milne-Edwards, 1836) not yet fully known, as only few larval stages have been found (Palma 1985).

The literature reports that there are relatively few publications in Chilean marine decapods, especially the larval stages, and often these studies have been restricted to intertidal and shallow water specimens or are based on few specimens (Báez 1973, 1979, Báez & Martín 1992). Recent laboratory studies, however, concern the reproductive cycle of *Jasus frontalis* (Dupré 1996, Dupré & Guisado 1996, Dupré 2000).

The vertical sampling was carried out by a bongo-net, 20 cm in diameter and 500 microns mesh size, between 100 and 0 m around Robinson Crusoe Island (33°37'S-78°53'W), nearby the 100 m isobath, and between 80 and 0 m around Selkirk Island (33°45'S-80°46'W), because of unfavourable sea condition.

Because of numerous buoys signalling the cages of *Jasus frontalis*, the R/V “Abate Molina” could not carry out sampling in shallow waters.

The sampling stations were respectively 20 around Robinson Crusoe Island and 10 around Selkirk Island (Fig. 1).



Figure 1

Zooplankton sampling stations

Estaciones de muestreo de zooplancton

In consideration of the standards of sampling to collect *Jasus frontalis* and the time through which the sampling was carried out (70 hours, navigation included), it was decided to have only two large samples of the same volume (500 cc) by mixing respectively the 20 and 10 samples.

The lack of larval stages of *Jasus frontalis* into the samples (Mujica & Dupré, personal communication) has allowed, however, to determine the structure of the zooplankton population in the waters around the Archipelago at that time.

Qualitative and quantitative structures were obtained by studying ten plankton subsamples of 10.0 cc drawn from each large samples of the same volume (500 cc) at a fixed level into the beaker after having suspended by stirring all the material (Table 1).

The zooplankton population was present with 237 and 206 organisms / m³ respectively around Robinson Crusoe and Selkirk islands. Decapoda larvae at different

stage of development were mostly represented in the water of the Robinson Crusoe Island (84 larvae / m³).

Chaetognata and Tunicata were prevailing in the structure of the zooplankton in Robinson Crusoe (46.4%) and in the Selkirk waters (67.2%), but among the Tunicata, *Oikopleura* was most abundant in the former and *Doliolum* in the latter island waters.

Minor components of the structure were Coelenterata, eggs and fish larvae (1.6-3.1%), as well as Radiolaria, Pteropoda, Amphipoda, Mysidacea, Polychaeta larvae and Ostracoda with lower percentage (1.0 %).

The differences from the quantitative point of view concerning Chaetognata, Decapoda larvae, Copepoda, Tunicata (Larvacea and Thaliacea) as well as the structure of the zooplankton (Fig. 2) do not seem to show a differentiation of water masses, but the setting up of typical "Niño" conditions.

Table 1

Zooplankton counting data. Results expressed in per cent and in m³

Datos del zooplancton. Resultados en porcentaje y por m³

	Robinson Crusoe Island			Selkirk Island		
	Counted	%	m ³	Counted	%	m ³
Chaetognata	571	39,2	93	218	42,7	88
Larvae Decapoda	517	35,5	84	33	6,5	13
Copepoda	125	8,6	20	96	18,8	39
Tunicata <i>Oikopleura</i>	105	7,2	17	9	1,8	4
Tunicata <i>Doliolum</i>	30	2,1	5	125	24,5	50
Other organisms	110	7,5	18	30	5,9	12

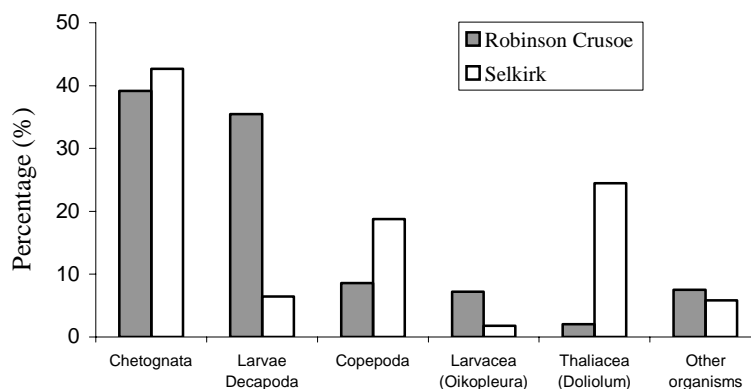


Figure 2

Structure of the zooplankton (in percentage) collected in the surrounding waters of the J. Fernández Archipelago (February 2002)

Estructura del zooplancton en porcentaje capturado en las aguas del archipiélago Juan Fernández en febrero de 2002

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