



Arca zebra (SWAINSON, 1833; MOLLUSCA: BIVALVIA): AN ECOLOGICAL ISLAND FOR POLYCHAETE COMMUNITY.

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INTRODUCTION

Arca zebra (Swainson, 1833), commonly known like pepitona, ark shell or turkey wing, is a very abundant bivalve on shallow waters from northeastern of Venezuela, where it is located forming extensive natural banks, and whose fishery has a high socio-economic impact in this region, mainly in some fishing communities of the Sucre and Nueva Esparta states, reached, in 1992, more than 8,000 tons (1). It is a basic food in the popular diet of the inhabitants of northern states during the months understood between September and April, period that constitutes the season of exploitation allowed by INIA (Instituto Nacional de Investigaciones Agropecuarias). In Venezuela, the fishing of this mollusk occupies the first place. The valves of this mollusk are heavy, sculptured by prominent radial ribs, the periostracum are covered by a velvet, that which constitutes a favorable biological substrate as refuge, feeding and for the reproduction and growth of marine invertebrates, specially to the polychaetes. In this work, a polychaete community was analyzed based on species richness, abundances and diversity. The present study is part of a project to know the polychaetes community associated to bivalve mollusks of commercial interest.

METHODS

Bivalves were collected in the locality of Chacopata (10°42'30"N-63°48'30"W) (Fig. 1)

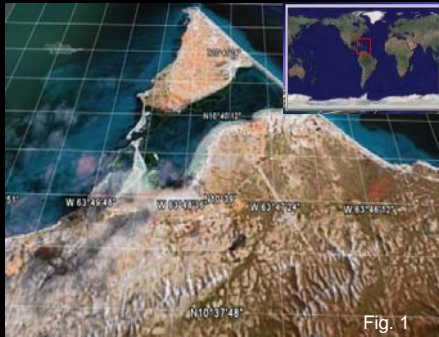


Fig. 1

From October 2005 to January 2006, using a dray (1 m x 0.60 m) to depths between 8 and 12 m (Fig. 2). Samples kept in plastic containers with sea water and ice, were taken to the laboratory where the polychaetes were removed and fixed in formaldehyde 8%.

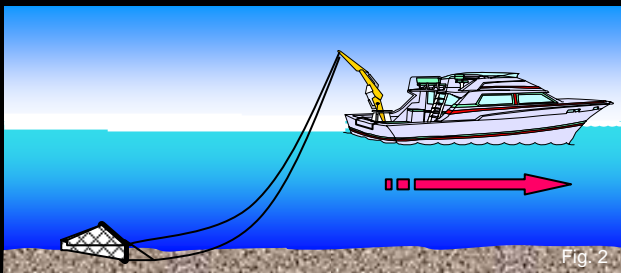
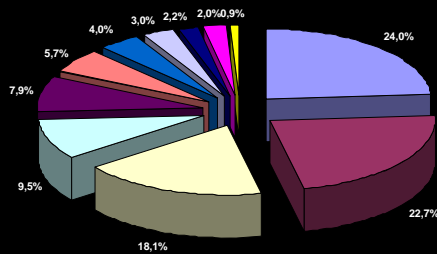


Fig. 2

RESULTS

Total abundance of polychaetes species: 600 bivalves were examined, being obtained a total of 1279 polychaetes species, with a richness species of 42 species belonging to 18 families (Fig. 3).



- Syllidae
- Eunicidae
- Serpulidae
- Hesionidae
- Dorvilleidae
- Cirratulidae
- Sabellidae
- Polynoidae
- Lumbrineridae
- Phyllodocidae, Orbinidae, Terebellidae, Spionidae
- Nereididae, Amphinomidae, Chrysopetalidae, Scalibregmatidae

Fig. 3.- Percentage distribution of polychaete families identified in this study.

Table 1. Orders, families and species of the Polychaetes class, identified in this study.

ORDEN	FAMILY	SPECIES	EXAM. MATERIAL	%			
SABELLIDA	Serpulidae	<i>Spirobranchus giganteus giganteus</i>	23	1.80			
		<i>S. tetracerus</i>	17	1.33			
		<i>Hydroides parvus</i>	86	6.72			
		<i>Vermiliopsis annulata</i>	72	5.63			
		<i>Hydroides sanctaecrucis</i>	8	0.63			
		<i>Hydroides gairacensis</i>	3	0.23			
		<i>Pseudovermilia occidentalis</i>	11	0.86			
		Sabellidae	<i>Notaulax nudicollis</i>	7	0.55		
			<i>Bispira melanostigma</i>	2	0.16		
			<i>Megalomma heterops</i>	1	0.08		
			<i>Amphicorina annea</i>	39	3.05		
		TEREBELLIDA	Terebellidae	<i>Streblosoma hartmanae</i>	14	1.09	
EUNICIDA	Eunicidae	<i>Eunice vittata</i>	45	3.52			
		<i>Fijunice antennata</i>	58	4.53			
		<i>Eunice cf. filamentosa</i>	51	3.99			
		<i>Lysidice ninnetta</i>	100	7.82			
		<i>Lysidice collaris</i>	16	1.25			
		<i>Marphysa sanguinea</i>	1	0.08			
		<i>Nematonereis hebes</i>	5	0.39			
		Dorvilleidae	<i>Schistomeringos cf. rudolphi</i>	96	7.51		
			Lumbrineridae	<i>Lumbrineris verrilli</i>	23	1.80	
		<i>Lumbrineris sp.</i>		4	0.31		
		CIRRATULIDA	Cirratulidae	<i>Timarete punctata</i>	61	4.77	
				<i>Cirriforr sp.</i>	8	0.63	
OPHELIDAE	Scalibregmatidae	<i>Scalibregma sp.</i>	1	0.08			
SPIONIDA	Spionidae	<i>Polydora sp.</i>	15	1.17			
ORBINIIDA	Orbinidae	<i>Armandia maculata</i>	18	1.41			
		CAPITELLIDA	Maldanidae	<i>Axhiotella mucosa</i>	2	0.16	
PHYLLODOCIDA	Nereididae			<i>Nereididae sp. A</i>	3	0.23	
				<i>Nereis falsa</i>	9	0.70	
				Syllidae	<i>Typosyllis lutea</i>	119	9.30
					<i>Trypanosyllis zebra</i>	60	4.69
					<i>Trypanosyllis vittigera</i>	19	1.49
				<i>Syllis gracilis</i>	40	3.13	
				<i>Exogone dispar</i>	54	4.22	
				Hesionidae	<i>Podarke obscura</i>	106	8.29
					<i>Hesionia splendida</i>	10	0.78
				Phyllodocidae	<i>Anatides (Phyllodoce) madeirensis</i>	24	1.88
					Chrysopetalidae	<i>Bhawania goodei</i>	4
		Polynoidae	<i>Harmatoe aculeata</i>	12		0.94	
<i>Halosydna leucohyba</i>	25		1.95				
Amphinomidae	<i>Amphinom sp.</i>	7	0.55				

Syllidae, Eunicidae and Serpulidae were the families with more abundance in the two samplings representing 24.0%, 22.7% and 18.1% respectively; and represent more than 60% of the total diversity in both samplings.

On the species level, *Typosyllis lutea* (9.3%), *Podarke obscura* (8.3%), *Lysidice ninnetta* (7.8%) and *Schistomeringos cf. rudolphi* (7.5%) were the most abundant species, while *Hydroides gairacensis*, *Notaulax nudicollis*, *Marphysa sanguinea*, *Scalibregma sp.*, *Hesionia splendida*, *Bhawania goodei*, *Nereididae sp. A* and *Lumbrineris sp.* the least abundant (table 1).

The species richness found in this study is considerably higher than that found in most previous studies, e.g. 38 species of polychaetes on *Isoognomon alatus* (Díaz and Liñero, 2003a); 26 associated to *Pinctada imbricata* (Díaz and Liñero 2003b) and 28 associated to *Spondylus americanus* (Liñero & Díaz, 2006). In these works, serpulid species were the most abundant coinciding with the present study, these species (serpulids) were recorded associated to mollusks bivalves above mentioned, except *S. tetracerus* that it was not found on *Pinctada imbricata*. The species richness of serpulids is due to the suitability of the baves surfaces for colonization and formation of calcium carbonate tubes.

The most abundant species were *Typosyllis lutea* (Syllidae) and *Podarke obscura* (Hesionidae), agreeing with that reported by Liñero 1999 about polychaetes associated to *Perna viridis*. Both species have an ample capacity of colonization of diverse types of hard substrata as corals, shells, artificial substrate, sponges algae and sand.

There were no polychaetes inside the valves, despite the presence of *Polydora sp.* was reported but the species was not abundant. The presents results on species richness and diversity provides evidence for the importance of *A. zebra* shells as ecological island for polychaetes community. This contribution constitutes the first study about polychaetes associated to *A. zebra* in Venezuela.

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