

## Annotated checklist of marine molluscs collected during the R. V. Victor Hensen Costa Rica Expedition 1993/1994

R. A. Cruz

Escuela de Ciencias Biológicas. Area de Ecología y Manejo de Recursos Costeros. Laboratorio de Manglares. Universidad Nacional, Heredia, Costa Rica.

(Rec. 25-V-1995. Rev. 22-II-1996. Acep. 22-IV-1996)

**Abstract:** An annotated checklist of species of marine molluscs from Golfo Dulce, Bahía Coronado and Golfo de Nicoya, Costa Rica, obtained at 20-200 m during the Victor Hensen cruise, includes 157 species: 108 Gastropoda and 49 Pelecypoda. The checklist includes station and depth data for all species.

**Key words:** Molluscs, Gastropoda, Bivalvia, taxonomy, Costa Rica.

Except for the taxonomic information on gastropods and bivalves along the shores of the Panamic Province by Olsson (1961) and Keen (1971), and the reports of Nichols-Driscoll (1976) and Maurer *et al.* (1984) on the benthic invertebrates of Golfo Dulce and Golfo de Nicoya respectively, there are no species lists available for the Golfo Dulce, Bahía Coronado and Golfo de Nicoya.

The purpose of this project is to list the gastropods and bivalves collected during the surveys of RV Victor Hensen.

### MATERIAL AND METHODS

All specimens collected during the two legs of RV Victor Hensen were preserved in 10 % formaline and identified using Olsson (1961), Keen (1971) and Skoglund (1991, 1992). Specimens are deposited in the Museo de Biología Marina, Universidad Nacional (UN). For station data see Wolff and Vargas (1994).

### RESULTS AND DISCUSSION

The list of gastropods and bivalves found at the various sample stations in the three areas appears on Table 1.

A total of 157 species were identified: 108 gastropods and 49 bivalves.

Among the most abundant gastropods were *Polystira oxtropis* and *Strombina fusionoidea* in Golfo Dulce, *Oliva polpasta* in Bahía Colorado and *Fusinus panamensis* in the Golfo de Nicoya.

The highest species number of gastropods was found at station 51 (Golfo de Nicoya, about 60 m)

Of the 49 bivalves collected, *Tellina ecuadoriana* was the dominant living bivalve in Golfo Dulce and Golfo de Nicoya.

Bivalve species richness was highest at station 31 (Bahía Ballena, 22 m), followed by station 35 and 51 (Golfo de Nicoya, 15 m and 65 m, respectively).

TABLE I

*Marine molluscs collected during the RV Victor Hensen expedition to Pacific Costa Rica. Mollusc species/station*

GASTROPODS		
Families/species	Station/Depth	Catalogue
<b>Fissurellidae</b>		
<i>Stromboli beebei</i> (Hertlein & Strong, 1951)	51 (65 m)	UN-29-K
<b>Trochidae</b>		
<i>Turcica admirabilis</i> Berry, 1969	31 (20-30 m)	UN-74-K
<i>Calliostoma veleroe</i> Mclean, 1970	52 (100 m)	UN-92-K
<b>Architectonicidae</b>		
<i>Architectonica nobilis</i> Röding, 1798	31 (20-30 m) 50 (45 m) 51 (65 m) 52 (100 m) P (50 m) D (40 m)	UN-425-K
<b>Turritellidae</b>		
<i>Turritella clarionensis</i> Hertlein & Strong, 1951	E (40 m)	UN-437-K
<i>Turritella leucostoma</i> Valenciennes, 1832	35 (18 m) 51 (65 m) Q (20 m) I (160-200 m)	UN-440-K
<i>Turritella nodulosa</i> King & Broderip, 1832	31 (20-30 m)	UN-442-K
<b>Vermetidae</b>		
<i>Eualetes tulipa</i> (Chew, 1843)	51 (65 m)	UN-501-K
<b>Epitoniidae</b>		
<i>Sthenorytis diana</i> (Hinds, 1844)	51 (65 m) N (200 m)	UN-664-K
<i>Amaea ferminiana</i> (Dall, 1908)	52 (100 m) P (50 m) G (200 m)	UN-672-K
<b>Calyptraeidae</b>		
<i>Crucibulum scutellatum</i> (Wood, 1928)	51 (65 m)	UN-825-K
<b>Naticidae</b>		
<i>Natica caneloensis</i> Hertlein & Strong, 1955	45 (15 m) 51 (65 m) 52 (100 m)	UN-860-K
<i>Natica broderipiana</i> Récluz, 1844	31 (20-30 m)	UN-870-K
<i>Natica colima</i> Hertlein & Strong, 1937	06 (40 m) 30 (20 m) 54 (200 m) P (50 m)	UN-862-K
<i>Natica grayi</i> Philippi, 1852	F (70 m)	UN-863-K
<i>Natica elenae</i> Récluz, 1844	51 (65 m) N (200 m)	UN-871-K
<i>Polinices uber</i> (Valenciennes, 1832)	31 (20-30 m) 43 (20 m) 45 (10 m) 51 (65 m)	UN-882-K

<i>Sinum grayi</i> (Deshayes, 1843)	53	(75 m)	UN-891-K
<b>Ovulidae</b>			
<i>Jenneria pustulata</i> (Lightfoot, 1786)	31	(20-30 m)	UN-940-K
	50	(45 m)	
<b>Tonnidae</b>			
<i>Malea ringens</i> (Swainson, 1822)	06	(40 m)	UN-942-K
<b>Cassididae</b>			
<i>Semicassis centiquadrata</i> (Valenciennes, 1832)	35	(15 m)	UN-948-K
<b>Ficidae</b>			
<i>Ficus ventricosa</i> (Sowerby, 1825)	06	(40 m)	UN-952-K
<b>Ranellidae</b>			
<i>Cymatium amictoideum</i> Keen, 1971	51	(65 m)	UN-954-K
<i>Linatella weigmanni</i> (Anton, 1839)	43	(20 m)	UN-955-K
<i>Distorsio constricta</i> (Broderip, 1833)	06	(40 m)	UN-962-K
	51	(65 m)	
	52	(100 m)	
	53	(75 m)	
	N	(200 m)	
	O	(100 m)	
	P	(50 m)	
<i>Distorsio decussata</i> (Valenciennes, 1832)	31	(20 m)	UN-963-K
	50	(45 m)	
	52	(100 m)	
<b>Bursidae</b>			
<i>Bursa corrugata corrugata</i> (Perry, 1811)	50	(45 m)	UN-964-K
<i>Bufo nana</i> (Broderip & Sowerby, 1829)	06	(40 m)	UN-966-K
	50	(45 m)	
	51	(65 m)	
	P	(50 m)	
	F	(70 m)	
	H	(15 m)	
<b>Muricidae</b>			
<i>Haustellum recurvirostris</i> (Broderip, 1833)	54	(200 m)	UN-976-K
<i>Haustellum tricornis</i> (Berry, 1960)	50	(45 m)	UN-978-K
	51	(65 m)	
	F	(70 m)	
	J	(50 m)	
<i>Chicoreus brassica</i> (Lamarck, 1822)	35	(18 m)	UN-979-K
	51	(65 m)	
	52	(100 m)	
	53	(75 m)	
	P	(50 m)	
	S	(50 m)	
<i>Chicoreus regius</i> (Swainson, 1821)	51	(65 m)	UN-981-K
<i>Chicoreus peratus</i> (Keen, 1960)	52	(100 m)	UN-982-K
	F	(70 m)	
<i>Pteropurpura centrifuga</i> (Hinds, 1844)	52	(100 m)	UN-1037-K
	N	(200 m)	
<i>Haustellotyphis cumingii</i> (Broderip, 1833)	F	(70 m)	UN-1048-K
<i>Neoparana muricata</i> (Broderip, 1832)	51	(65 m)	UN-1095-K
<b>Buccinidae</b>			
<i>Cantharus panamicus</i> (Hertlein & Strong, 1951)	51	(65 m)	UN-1104-K

<i>Cantharus rehderi</i> Berry, 1962	51 (65 m) G (200 m) J (50 m)	UN-1105-K
<i>Cantharus gatesi</i> (Berry, 1963)	06 (40 m) 52 (100 m) O (100 m) P (50 m) G (200 m)	UN-1120-K
<i>Cantharus macrospira</i> (Berry, 1957)	31 (20-30 m) T (20 m) H (15-20 m)	UN-1121-K
<i>Metula amosi</i> Vanatta, 1913	P (50 m)	UN-1133-K
<i>Northia northiae</i> (Griffith & Pidgeon, 1834)	51 (65 m)	UN-1136-K
<i>Antilophos veraguensis</i> (Hinds, 1843)	06 (49 m) 51 (65 m) 52 (100 m) P (50 m) E (40 m)	UN-1138-K
<i>Phos crassus</i> Hinds, 1844	06 (40 m) 30 (20 m) 52 (100 m)	UN-1139-K
<i>Phos gaudens</i> Hinds, 1844	35 (15 m)	UN-1142-K
<i>Phos articulatus</i> Hinds, 1844	30 (20 m) 51 (65 m)	UN-1144-K
<i>Trajana perideris</i> (Dall, 1910)	51 (65 m) F (70 m)	UN-1148-K
<i>Truncaria filosa</i> (A. Adams & Reeve, 1846)	51 (65 m) 53 (75 m)	UN-1151-K
<b>Columbellidae</b>		
<i>Cosmioconcha modesta</i> (Powys, 1835)	43 (20 m) 45 (15 m) 52 (100 m) D (20 m)	UN-1216-K
<i>Strombina dorsata</i> (Sowerby, 1832)	35 (15 m)	UN-1270-K
<i>Strombina fusinoidea</i> Dall, 1916	P (50 m) F (70 m)	UN-1272-K
<i>Strombina recurva</i> (Sowerby, 1832)	51 (65 m) T (20 m)	UN-1282-K
<i>Cotonopsis mendozana</i> (Shasky, 1970)	51 (65 m) F (70 m)	UN-1287-K
<i>Cotonopsis turrita</i> Sowerby, 1832)	43 (20 m)	UN-1288-K
<i>Nassarius catallus</i> (Dall, 1908)	52 (100 m) P (50 m) F (70 m)	UN-1292-K
<i>Nassarius gallegosi</i> Strong & Hertlein, 1937	35 (18 m) J (50 m)	UN-1299-K
<i>Nassarius nodicinctus</i> (A. Adams, 1852)	06 (40 m) P (50 m) J (50 m)	UN-1307-K
<i>Nassarius shaskyi</i> Mclean, 1970	51 (65 m)	UN-1312-K

<i>Latirus hemphilli</i> Hertlein & Strong, 1951	31 (20-30 m) 50 (45 m)	UN-1329-K
<i>Fusinus panamensis</i> Dall 1908	51 (65 m) 52 (100 m) 53 (75 m) 54 (200 m) O (100 m) P (50 m) G (200 m) I (160-200 m)	UN-1349-K
Harpidae		
<i>Harpa crenata</i> Swainson, 1822	51 (65 m)	UN-1357-K
Olividae		
<i>Oliva polpasta</i> Dudos 1833	31 (20-30 m) 35 (15 m) 50 (45 m) 51 (65 m) P (50 m) D (20 m)	UN-1363-K
Vassidae		
<i>Vassum caestus</i> (Broderip, 1833)	51 (65 m)	UN-1397-K
Marginellidae		
<i>Prunum curtum</i> (Sowerby, 1832)	51 (65 m)	UN-1398-K
Mitridae		
<i>Mitra swainsonii</i> Broderip, 1836	50 (45 m) 51 (65 m) 52 (100 m) 53 (75 m) N (200 m)	UN-1421-K
<i>Subcancilla attenuata</i> (Broderip, 1836)	31 (20-30 m) 51 (65 m) P (50 m) Q (20 m) T (20 m)	UN-1434-K
<i>Subcancilla hindsii</i> (Reeve, 1844)	35 (15 m) Q (20 m) T (20 m)	UN-1440-K
Cancellariidae		
<i>Cancellaria albida</i> Hinds, 1843	06 (40 m)	UN-1448-K
<i>Cancellaria decussata</i> Sowerby, 1832	52 (100 m) P (50 m)	UN-1450-K
<i>Cancellaria indentata</i>	F (70 m)	UN-1460-K
<i>Cancellaria gemmulata</i> Sowerby, 1832	F (70 m)	UN-1451-K
<i>Cancellaria urceolata</i> Hinds, 1843	52 (100 m) 30 (30 m)	UN-1454-K
<i>Admetula deroyae</i> (Petit, 1970)	N (200 m)	UN-1456-K
<i>Cancellaria cremata</i> Hinds, 1843	P (50 m) F (70 m)	UN-1459-K
<i>Cancellaria jayana</i> Keen, 1958	52 (100 m)	UN-1461-K
<i>Cancellaria cassidiformis</i> Sowerby, 1832	06 (40 m)	UN-1466-K
<i>Cancellaria bulbulus</i> Sowerby, 1832	06 (40 m)	UN-1473-K
<i>Svelia centrota</i> (Dall, 1896)	N (200 m)	UN-1476-K
<i>Azelella funiculatum</i> (Hinds, 1843)	51 (65 m)	UN-1482-K
<i>Trigonostoma bullatum</i> (Sowerby, 1832)	54 (200 m)	UN-1484-K

## Conidae

<i>Conus arcuatus</i> Broderip & Sowerby, 1829	52 (100 m) P (50 m) F (70 m)	UN-1496-K
<i>Conus regularis</i> Sowerby, 1833	51 (65 m) 52 (100 m) 53 (75 m) O (100 m) P (50 m) Q (20 m) F (70 m)	UN-1507-K
<i>Conus archon</i> Broderip, 1833	31 (20 m)	UN-1510-K
<i>Conus fergusonii</i> Sowerby, 1873	51 (65 m) F (70 m)	UN-1511-K
<i>Conus perplexus</i> Sowerby, 1857	35 (15 m)	UN-1515-K
<i>Conus tornatus</i> Sowerby, 1833	35 (15 m) 50 (45 m)	UN-1516-K
Terebridae		
<i>Terebra armillata</i> Hinds, 1844	06 (40 m) 31 (20 m) 35 (15 m)	UN-1522-K
<i>Terebra glauca</i> Hinds, 1844	P (50 m)	UN-1538-K
<i>Terebra hancocki</i> Bratcher & Burch	35 (15 m)	UN-1540-K
<i>Terebra ornata</i> Gray, 1834	31 (20 m) 50 (45 m) 51 (65 m)	UN-1554-K
<i>Terebra robusta</i> Hinds, 1844	51 (65 m)	UN-1560-K
Turridae		
<i>Tiatarris libya</i> (Dall, 1919)	51 (65 m) P (50 m) F (70 m)	UN-1576-K
<i>Imaclava pilsbryi</i> Bartsch, 1950	31 (20-30 m) 35 (15 m)	UN-1604-K
<i>Drillia roseola</i> (Hertlein & Strong, 1955)	31 (20-30 m) 35 (15 m)	UN-1621-K
<i>Polystira nobilis</i> (Hinds, 1843)	06 (40 m) 51 (65 m) 53 (75 m) N (200 m) O (20 m) P (50 m) F (70 m) G (200 m)	UN-1647-K
<i>Polystira oxytropis</i> (Sowerby, 1834)	06 (40 m) 31 (20-30 m) 51 (65 m) 52 (100 m) 53 (75 m) P (50 m) Q (20 m) F (70 m) G (200 m)	UN-1649-K
<i>Polystita picta</i> (Reeve, 1843)	31 (20-30 m)	UN-1649-K

	P (50 m)	
	Q (20 m)	
	D (20 m)	
<i>Fusiturricula armilda</i> (Dall, 1908)	P (50 m)	UN-1654-K
	N (200 m)	
	E (40 m)	
<i>Cochlespira cedonulli</i> (Reeve, 1843)	51 (65 m)	UN-1655-K
	54 (200 m)	
	N (200 m)	
	P (50 m)	
	F (70 m)	
	G (200 m)	
	I (160-200m)	
<i>Knefastia walkeri</i> Berry, 1958	P (50 m)	UN-1662-K
<i>Crassispira maura</i> (Sowerby, 1834)	51 (65 m)	UN-1676-K
<i>Crassispira ballenaensis</i> Hertlein & Strong, 1951	51 (65 m)	UN-1682-K
	F (70 m)	
<i>Hindsiclava militaris</i> (Reeve, 1843)	F (70 m)	UN-1710-K
<i>Hindsiclava resina</i> (Dall, 1908)	31 (20-30 m)	UN-1711-K
	N (200 m)	
	P (50 m)	
	E (40 m)	
	F (70 m)	
	H (15-20 m)	
<i>Carinodrillia adonis</i> Pilsbry & Lowe, 1932	51 (65 m)	UN-1721-K
<i>Conspodrillia alcestis</i> (Dall, 1919)	F (70 m)	UN-1734-K
<i>Cruziturricula arcuata</i> (Reeve, 1843)	51 (65 m)	UN-1764-K
	52 (100 m)	
	P (50 m)	
<i>Glyphostoma bayeri</i> Olsson, 1971	51 (65 m)	UN-1779-K
	52 (100 m)	
	N (200 m)	
<i>Strombinoturris crokeri</i> Hertlein & Strong, 1951	51 (65 m)	UN-1787-K

## BIVALVES

Families/species	Station/depth	Catalogue
<b>Nuculanidae</b>		
<i>Adrana crenifera</i> (Sowerby, 1833)	P (50 m)	UN-37-K
	T (20 m)	
	51 (65 m)	
<i>Nuculana marella</i> Hertlein, Hanna & Strong 1940	51 (65 m)	UN-17-K
<b>Arcidae</b>		
<i>Anadara biangulata</i>	N (200 m)	UN-
<i>Anadara concinna</i> (Sowerby, 1833)	N (200 m)	UN-78-K
	P (50 m)	
<i>Anadara nux</i> (Sowerby, 1833)	31 (20-30 m)	UN-86-K
<i>Arca pacifica</i> (Sowerby, 1833)	F (70 m)	
<i>Arcopsis solida</i> Sowerby, 1833	35 (15 m)	UN-99-K
<b>Mytilidae</b>		
<i>Mytella guyanensis</i> (Lamarck, 1819)	35 (15 m)	UN-125-K

<b>Pinnidae</b>			
<i>Atrina maura</i> (Sowerby, 1835)	M	(100 m)	UN-157-K
<b>Pectinidae</b>			
<i>Flabelligerina sericeus</i> Hinds, 1845	I	(160-200m)	UN-177-K
<i>Oppenheimopecten perulus</i> (Olsson, 1961)	31	(20-30 m)	UN-180-K
<i>Pacipecten tumbezensis</i> (Orbigny, 1846)	51	(65 m)	UN-200-K
<i>Pseudamussium fasciculatum</i> (Hinds, 1845)	N	(200 m)	UN-204-K
<b>Spondylidae</b>			
<i>Spondylus princeps</i> Broderip, 1833	F	(70 m)	UN-211-K
<b>Anomiidae</b>			
<i>Anomia peruviana</i> Orbigny, 1846	43	(20 m)	UN-233-K
<b>Crassatellidae</b>			
<i>Eucrassatella gibbosa</i> Sowerby, 1832	T	(20 m)	UN-230-K
	31	(20-30 m)	
<b>Carditidae</b>			
<i>Carditamera radiata</i> (Sowerby, 1833)	D	(20 m)	UN-238-K
<i>Cyclocardia beebei</i> (Hertlein, 1958)	F	(70 m)	UN-242-K
<b>Chamidae</b>			
<i>Arcinella californica</i> (Dall, 1903)	35	(15 m)	UN-353-K
<b>Cardiidae</b>			
<i>Trachycardium belcheri</i> (Broderip & Sowerby, 1829)	31	(20-30 m)	UN-365-K
	51	(65 m)	
<i>Trigonocardia granifera</i> Broderip & Sowerby, 1829	50	(20-30 m)	UN-369-K
<i>Trachycardium consors</i> (Sowerby, 1833)	50	(45 m)	UN-370-K
<i>Trachycardium serticosum</i> (Sowerby, 1833)	35	(15 m)	UN-372-K
<i>Papyridea crockeri</i>	51	(65 m)	
<i>Nemocardium annettae</i> (Dall, 1889)	J	(50 m)	UN-373-K
	O	(100 m)	
	P	(50 m)	
	T	(20 m)	
	31	(20-30 m)	
	43	(20 m)	
<b>Veneridae</b>			
<i>Globivenus isocardia</i> (Verrill, 1870)	31	(20-30 m)	UN-381-K
	51	(65 m)	
<i>Transennella modesta</i> (Sowerby, 1835)	31	(20-30 m)	UN-394-K
<i>Pitar callicomatus</i> (Dall, 1902)	T	(20 m)	UN-412-K
<i>Pitar mexicanus</i> Hertlein & Strong, 1948	J	(50 m)	UN-422-K
	06	(40 m)	
<i>Megapitaria squalida</i> (Sowerby, 1835)	31	(20-30 m)	UN-425-K
<i>Ciclinella zacata</i> (Gould, 1851)	31	(20-30 m)	UN-431-K
<i>Clementia solida</i> Dall, 1902	35	(15 m)	UN-435-K
<i>Chionopsis gnidia</i> (Broderip & Sowerby, 1829)	35	(15 m)	UN-450-K
<i>Chione kelletii</i> (Hinds, 1845)	N	(200 m)	UN-459-K
	O	(100 m)	
<i>Chione mariae</i> (Orbigny, 1846)	31	(20-30 m)	UN-460-K
<i>Harvella elegans</i> (Sowerby, 1835)	30	(30 m)	UN-498-K
	54	(200 m)	
<i>Mullinia palida</i> (Broderip & Sowerby, 1829)	45	(15 m)	UN-504-K
<b>Tellinidae</b>			
<i>Tellina ecuadoriana</i> Pilsbry & Olsson, 1941	D	(20 m)	UN-527-K
	G	(20 m)	
<i>Tellina hertleini</i> (Olsson, 1961)	F	(70 m)	UN-528-K



<i>Tellina nicoyana</i> Hertlein & Strong, 1949	54	(200 m)	UN-536-K
<i>Tellina ochracea</i> Carpenter, 1864	31	(20-30 m)	UN-537-K
<i>Tellina insculpta</i> Hanley, 1834	31	(20-30 m)	UN-544-K
<i>Leporimetes dombei</i> (Hanley, 1844)	43	(20 m)	UN-558-K
<i>Macoma medioamericana</i>	P	(50 m)	UN-560-K
	54	(200 m)	
<i>Macoma siliqua</i> (C.B. Adams, 1852)	D	(20 m)	UN-566-K
	G	(20 m)	
	54	(200 m)	
	30	(20 m)	
	45	(15 m)	
Psammobiidae			
<i>Tagelus burgeoisae</i> Hertlein, 1951	50	(45 m)	UN-622-K
<i>Tagelus peruvianus</i> Pilsbry & Olsson, 1941	H	(15 m)	UN-623-K
Corbulidae			
<i>Corbula tumaca</i> (Olsson, 1961)	F	(70 m)	UN-690-K
Pholadidae			
<i>Pholas chiloensis</i> (Molina, 1782)	J	(50 m)	UN-700-K

## RESUMEN

Se presenta una lista de moluscos gastrópodos y bivalvos recolectados durante el Crucero RV Victor Hensen en el Pacífico de Costa Rica, entre 20 m y 200 m de profundidad. Se identificaron 157 especies de las cuales 108 son gastrópodos y 49 bivalvos.

## REFERENCES

- Keen, M. 1971. Sea shells of Tropical West America. Stanford University, Stanford, California. 1064 p.
- Maurer, D., C.H. Epifanio, H. Dean, S. Howe, J. Vargas, A. Dittel & M. Murillo. 1984. Benthic invertebrates of a tropical estuary: Gulf of Nicoya, Costa Rica. *J. Nat. Hist.* 18: 47-61.
- Nichols-Driscoll, J. 1976. Benthic invertebrate communities in Golfo Dulce, Costa Rica, an anoxic basin. *Rev. Biol. Trop.* 24: 281-298.
- Olsson, A. 1961. Mollusks of the Tropical Eastern Pacific: Panamic-Pacific Pelecypoda. Paleontological Research Institution, New York. 143 p.
- Skoglund. 1991. Additions to the Panamic Province. Bivalve (Mollusca) literature 1971 to 1990. *Festivus* 22: 1-79.
- Skoglund. 1992. Additions to the Panamic Province. Gastropod literature 1971-1992. *Festivus* 24: 1-169.
- Wolff, M. and J. A. Vargas (Eds). 1994. RV Victor Hensen Costa Rica Expedition 1993/1994, Zentrum für Marine Tropenökologie (ZMT) Contribution 2. Bremen, 109 p.