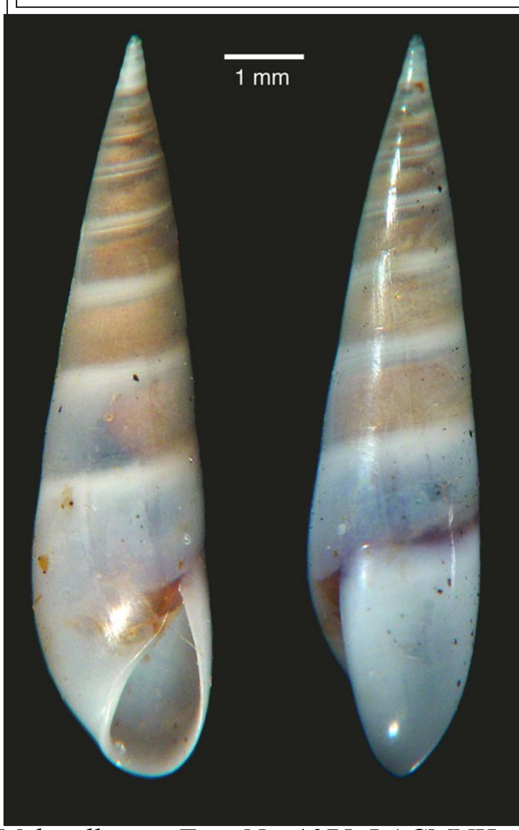
Southern California Association of
Marine Invertebrate Taxonomists

June, 2003

SCAMIT Newsletter

Vol. 22, No. 2

SUBJECT:	**Continuation of Bight'03 Polychaetes**
GUEST SPEAKER:	**Larry Lovell**
DATE:	**22 September 2003**
TIME:	**9:30 a.m. to 3:30 p. m.**
LOCATION:	**City of San Diego Marine Biology Lab 4918 N. Harbor Dr. suite 201**



Melanella rosa Type No. 1075; LACMNH
125 fms off Redondo, CA

MAY MINUTES

The meeting began with Paul Valentich Scott, our host for the day, discussing the increasing requests from scientists for non-formalin fixed material. Those wanting to do any type of DNA analysis would prefer animals fixed in 95% (or higher) ethanol. Or, better yet, to be frozen initially and then, if necessary, stored in 100% ethanol. Larry Lovell (SIO) then stated that the larger, more dense the animal, the higher percentage of ethanol needed for proper fixation and preservation.

The issue then arose of destructive sampling of museum collections. Many specimens are being destroyed for DNA, oxygen isotope, etc, analysis. The resulting problem being that if the animal is destroyed during analysis, how can one ever confirm that the specimen was originally, correctly identified.

Don Cadien (CSDLAC) then asked if the common practice of relaxing animals before preservation interferes with DNA analysis. The normal technique for specimen relaxation is a solution of Epsom salts (75 grams of Magnesium Sulfate per liter of freshwater) for 30 minutes. Paul was not sure and thought this was a good question. Perhaps one of our readers working in the DNA field can help us out?

We had a surprise visit from Leslie Harris (LACMNH) who had kindly driven up to the meeting to distribute copies of the Irene McCulloch 4 volume set of Qualitative Observations on Recent Foraminiferal Tests which had been requested by members. Demands on storage space had led to their heading for very deep storage (or perhaps discard) and so the offer was made and gladly accepted by interested members. Each set weighs about 15+ pounds, so Leslies's car had a very low rear-end when she arrived. Our thanks to her and to the museum for making these available after years of seclusion at the Allan Hancock Foundation in Jerry Bakus' lab.

It was now time to discuss bivalves. It was noted that there seems to be a grade between *Parvilucina tenuisculpta* and *P. approximata* making these species difficult to separate in the Southern California Bight. They are much more easily distinguished to the south of us in the Panamic region. Most of us present pretended not to hear that tid-bit of information…

Tony Phillips (CLAEMD) brought a specimen from 400m, for viewing. The animal turned out to be *Neilonella ritteri* (see pg 108 in Coan et al 2000). Paul cautioned us with the juveniles of this species as they tend to be more symmetrical and the umbones are almost central.

Tony's next specimen was from 402m in Santa Monica Bay. Paul guessed it to be a species of *Malletia*. When ID'ing this animal look for a slight sinus creating an angle in the outline of the shell (see page 102 in Coan et al 2000).

Kelvin Barwick (CSD) had brought digital images of some specimens that were captured in 500m off San Diego. They constituted a mixed lot of two different species. The first was in the "*Yoldia*" group. We decided to call it *Megayoldia* sp SD 1. It has a large obvious resilifer. Paul stated we would need a larger specimen to get the ID to species. The second animal threw us for a loop as well. The resilifer was smaller and teeth were more evident. Some guesses at ID were a juvenile *Yoldia* or *Nuculana conceptionis*. To check on the second guess, Tony Phillips brought out a specimen of an actual *Nuculana conceptionis* from 402m in Santa Monica Bay. The species is almost truncate posteriorly and has a very, thin, translucent shell (see pg 90 in Coan et al 2000). Upon comparison, we did not feel confident enough to call Kelvin's second specimen this species. Paul recommended leaving it at Protobranchia unidentified. He cautioned us again about trying to identify juvenile specimens.

Next Kelvin brought out a specimen of what he believed was *Dacrydium pacificum* (see pg 175 in Coan et al 2000) from a CSD pre-Bight'03 deep test station (DS1) at 508m. It was collected on both a 1mm screen fraction and a 0.5mm fraction. The ID was confirmed by Paul Scott.

Tony then brought out a specimen collected at the LA3 dumpsite in 500m. It turned out to be *Luzonia walleri* (see page 557 in Coan et al 2000).

After a wonderful lunch break we started back with specimens. Paul showed us a Poromyidae with a big "honking" (Paul's term), projecting tooth with no lateral teeth evident, and with a slightly punctate shell. The animal was

Dermatomya mactroides and is predatory like all septibranchs. Paul would like to make a request for specimens of any of the Poromyidae, especially the bodies.

He also showed us a specimen of *Vesticomya* from a cold seep at 1000m and a specimen of *Cyclopecten* from 3600m.

A specimen of *Leporimetis obesa* (see page 148 in Coan et al 2000) from 8m in Marina del Rey was the last animal to be viewed. The City of San Diego has also seen this animal on a few occasions. It has been collected in some of CSD's relict red sand stations which always have an interesting and unique faunal assemblage, and in Mission Bay. .

BELATED EULIMID MINUTES

Due to the quantity and quality of the information produced at the Eulimid meeting in April, the minutes, tables and voucher sheets are just now finished and are included below and at the end of the newsletter.

A review of the Eulimidae (Mollusca: Gastropoda) reported by the major benthic monitoring programs in the Southern California Bight
- Kelvin Barwick and Sarah Douglass

The publication of McLean's (1996) revision of the California offshore eulimids raised a number of questions regarding the species reported by SCAMIT. Consequently we recently undertook a careful review of the species listed in SCAMIT, 2001. This included a review of the published literature and examination of numerous specimens from participating SCAMIT members and agencies. Numerous species lots at the Los Angeles County Museum of Natural History (LACMNH) were examined as well. What follows is a brief overview of that research as well as the decision made as a result of our presentation to SCAMIT on April 14, 2003. The original PowerPoint presentation is available in PDF format upon request from the authors at: kbarwick@sandiego.gov.

The family Eulimidae Philippi, 1853 (following Warén, 1992; McLean's (1996) attribution to Troschel is in error) contains about 1250 described species, including approximately 425 fossil forms. Diversity of form within the group is characterized by Warén (1984) as being "as great as all other Prosobranchs." The only complete monographic treatment of the taxonomy of west American Eulimidae is Bartsch, 1917. The California eulimids were reviewed by McLean (1996). Warén (1984) reviewed the worldwide genera. Table 1 summarizes the literature reports of eulimid species reported from southern California.

The plates from Bartisch, 1917, have been digitized and are posted on the SCAMIT web site. The URL is:

http://www.scamit.org/New%20Taxonomic%20Tools/Bartsch%201917%20Eulimidea%20plates.pdf

Based largely on character states suggested by Bouchet and Warén (1986), a suite of shell characters was suggested. Some of the more useful traits are discussed below. See Table 2 for a synopsis of shell characters for the local specimens examined by the authors.

Despite overlap between some species, the overall shell length and maximum diameter are of taxonomic utility. The relative proportion of height to width can also be diagnostic.

The number of whorls in relation to overall shell dimensions has taxonomic value. For this study no distinction was made between protoconch and teleoconch. The count included the first visible body whorl (which includes part of the protoconch), being careful not to count the false suture. The false suture is an optical effect caused by the internal contact between whorls as seen through a translucent shell. This can give the appearance of a suture line (fig 1).

The outer lip shape as viewed from the side is used by most eulimid workers with the notable exception of McLean and Bartsch. In the present study only two conditions were recorded: sinuous (Plate 1, fig. C) and evenly curved (Plate 1, fig. A). Bouchet and Warén (1986) suggested a more specific nomenclature for describing the outer lip. This more rigorous methodology was not, largely for practical reasons, adopted in the present study.

the growth scars on one side of the shell (Plate 3, fig. B & D). The thickening of the shell in that region causes the curve. Some workers, including McLean (1996), use the character to define genera, i.e., *Vitreolina*, which is followed here.

Warén (1984) gives a thorough account of known eulimid reproductive strategies. Of the local genera *Melanella* and *Vitreolina* are reported to be gonochoristic. The genus *Eulima* is known to be a protrandric hermaphrodite. Significantly, sexual dimorphism can be reflected in shell morphology, i.e., large females and smaller males.

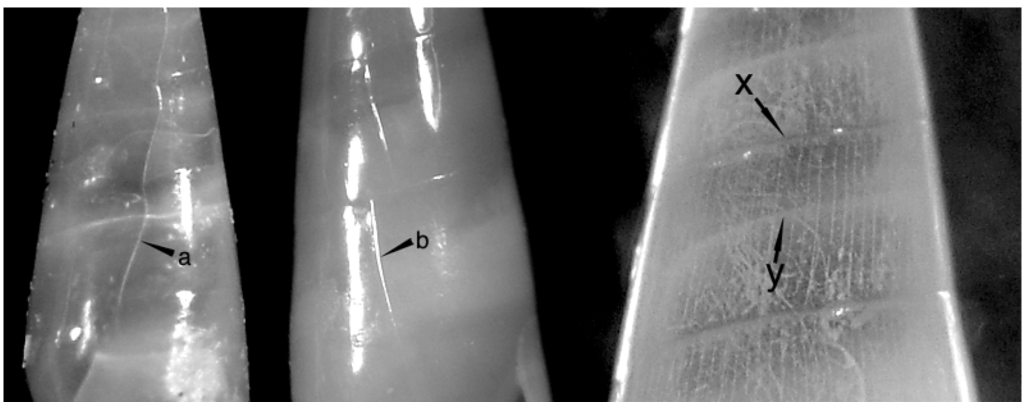


Figure 1 – Shell detail showing incremental growth scars (a & b), the suture line (x), and the false suture (y). a = vitreolina type; b = normal type

The periodic starts and stops of shell growth spurts are marked by axial lines or scars where the outer aperture has thickened between spurts. There are three types of scars (Fig. 1). First is the normal type in which the scar is straight or slightly curved. The second is the vitreolina type which resembles an uneven sinusoidal curve that dips at the false suture. Lastly there is the sabinella type which is a convex curve (not pictured here).

The overall shell curvature can be diagnostic between species but is considered by Bouchet and Warén (1986) to be of no taxonomic significance for higher classifications, i.e., genera. They contend that the curvature is a growth phenomenon caused by an alignment of

Eulimids are typically characterized as being, at least part time, ectoparasites on echinoderms. There are also a few internal parasitic forms. The hosts of many species are not known (Table 1). Some species spend only part of their life history on a host (Warén, 1984). The ectoparasitic forms mostly feed by means of a proboscis inserted into the host. For a more detailed description of the form and function of the proboscis see Smith, 1984. A radula is present in only a few genera, e.g., *Niso* and *Eulima*.

In general, a given genus of eulimid is restricted to a single class of echinoderm. *Vitreolina* is a notable exception. There is little information regarding host specificity at the species level in the literature. Our research produced some additional host information about our local fauna (Table 2). Based on the assumption that the animals found loose in the sample had left the host at time of collection, an attempt was made to correlate CSD infauna abundance data for Eulimidae with non-ophiuroid echinoderm data. The preliminary result showed no discernable pattern. Not enough is known, in general, about the life history of the local fauna.

Material was reviewed from City of San Diego (CSD), Los Angeles County Sanitation District (CSDLAC), The City of Los Angeles (CLAEMD), The Hertz Collection (HC), The City and County of San Francisco (CCSF), and Los Angeles County Museum of Natural History (LACMNH). The subsequent data was presented at the April 14 SCAMIT meeting. Below is a species by species synopsis of the results.

Balcis berryi – Only one broken specimen identified by Hank Chaney (SBMNH) in the CSD's SCBPP '94 collection. No change. LACMNH lots are an apparent mix of species. The type is figured in Bartsch, 1917 (as *Melanella berryi*, Plate 42, fig. 3)

Balcis compacta – Not reviewed by authors. No SCAMIT members present have reported this species. The origin of the record in SCAMIT (2001) species list is still unknown. No museum specimens were available for review. Bartsch (1917) figured Carpenter's type (as *Melanella compacta*, Plate 37, fig. 3).

Balcis micans – This remains a valid record for the SCAMIT species list (Plate 1 fig. C &D). However, records from CSD laboratory were misidentified. CSD records of *B. micans* (Plate 1 fig A & B) were discovered to be *Melanella rosa* Willett, 1944 (see cover photo of the holotype). Two individuals of this species were found in LACSD material misidentified as both *Polygireulima rutila* and *B. micans*.

Balcis oldroydae – The initial confusion about this species stems from the specimen illustrated by McLean (1996, fig. 1.13D). He appears to confuse the more rounded body whorl form with the more angled form described by Bartsch and recognized by SCAMIT members (Plate 2, fig. C & D). This, coupled with his inclusion of *Melanella micans borealis* (Bartsch, 1917 Plate 35, fig. 7) as a junior synonym of *B. oldroydae,* has created uncertainty as to the true diagnosis for this species. Until this apparent inconsistency can be clarified, it was decided to follow Bartsch's (1917, Plate 36, fig. 5, 6 & 7) original description, not McLean's re-description.

Balcis sp A – See the voucher sheet in this issue.

Eulima almo – No specimens from SCAMIT members were available for review. One specimen lot was found in the LACMNH and images were shown to SCAMIT members. They were all in agreement that we had not seen this species as represented by the Museum's specimen. It is believed to be a problem of nomenclature in the SCAMIT species list. John Ljubenkov confirmed that all his records of *E. almo* were changed to *E. raymondi* (personal communication June 6, 2003). For an illustration of the type see Bartsch, 1917(as *Strombiformis almo*, Plate 46, fig. 5).

Eulima raymondi – Not reviewed here.

Polygireulima rutila – No change. Since it is known that this species co-occurs with *B. oldroydae* loose in the sample and on the same host (Table 2) it was theorized that shell differences might be due to sexual dimorphism (Plate 2, fig. A – D). The research did not reveal convincing evidence to support this hypothesis.

Pseudosabinella bakeri – Not reviewed by authors.

Vitreolina columbiana – No change as reported by CSD and CLAEMD. (Plate 3, fig. A & B)

Vitreolina macra – No change as reported by CSD. (Plate 3, fig. C & D)

Vitreolina yod – No change as reported by CSD. (Plate 3, fig. E)

Balcis sp. SD1/*Balcis* sp. SD2 – These specimens are being carried as CSD in-house provisionals until more material can be found. For illustrations see the SCAMIT voucher sheet for *Balcis* sp A (Fig. 2) in this issue.

?*Nanobalcis* sp. – This would be the first record of this genus from the eastern Pacific (Fig. 2). The only known North American species, *Nanobalcis worsfoldi* Warén, 1990, was reported from the Caribbean and southwest Florida (Turgeon et al, 1998). There are three described species, world wide. It is a relatively small genus, maximum length about 3 mm, and is known to parasitize cidaroid sea urchins (Warén and Mifsud, 1990). Morris et al (1980) reports the only know locally occurring cidaroid is *Eucidaris thouarsii*. The sediment at the collecting site was composed of coarse sand and shell hash.

We would like to express our thanks to Jim McLean and Lindsey Groves of LACMNH for all their help. Also, thanks to Don Cadien for reviewing the manuscript.

Figure 2 – ?*Nanobalcis* sp, CSD ITP Reg. 2772(2), 24JUL02, 56m. Scale bar = 1mm

POLYCHAETE VOUCHER SHEET

Tom Parker (CSDLAC) has been busy again and we've included his voucher sheet of *Arabella endonata* at the back of the newsletter. Don't miss it.

NEW MEMBERSHIP FORM

The SCAMIT membership form has been updated and is available in a downloadable PDF format on our website.

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C/O The Natural History Museum, Invertebrate Zoology
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Los Angeles, California, 90007

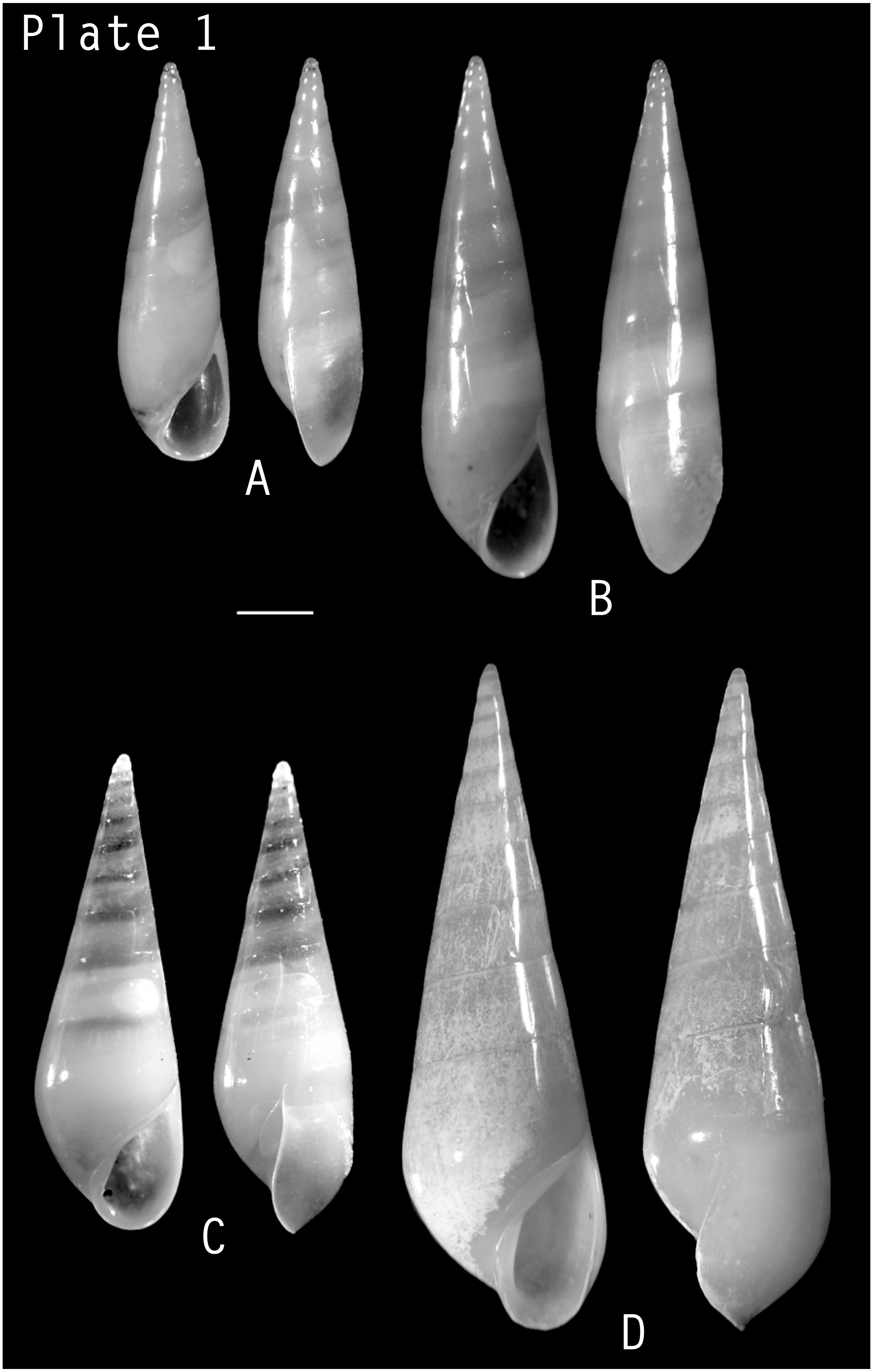

Figure A - B *Melanella rosa,* CSD Sta.A13(3), 5OCT92, 158 ft.; **C - D** *Balcis micans*; **C** CSD Sta. I18(2), 4JAN02, 19m; **D** LACSD Sta. E-40, 41 m, Nov. 1997. Scale bar = 1mm

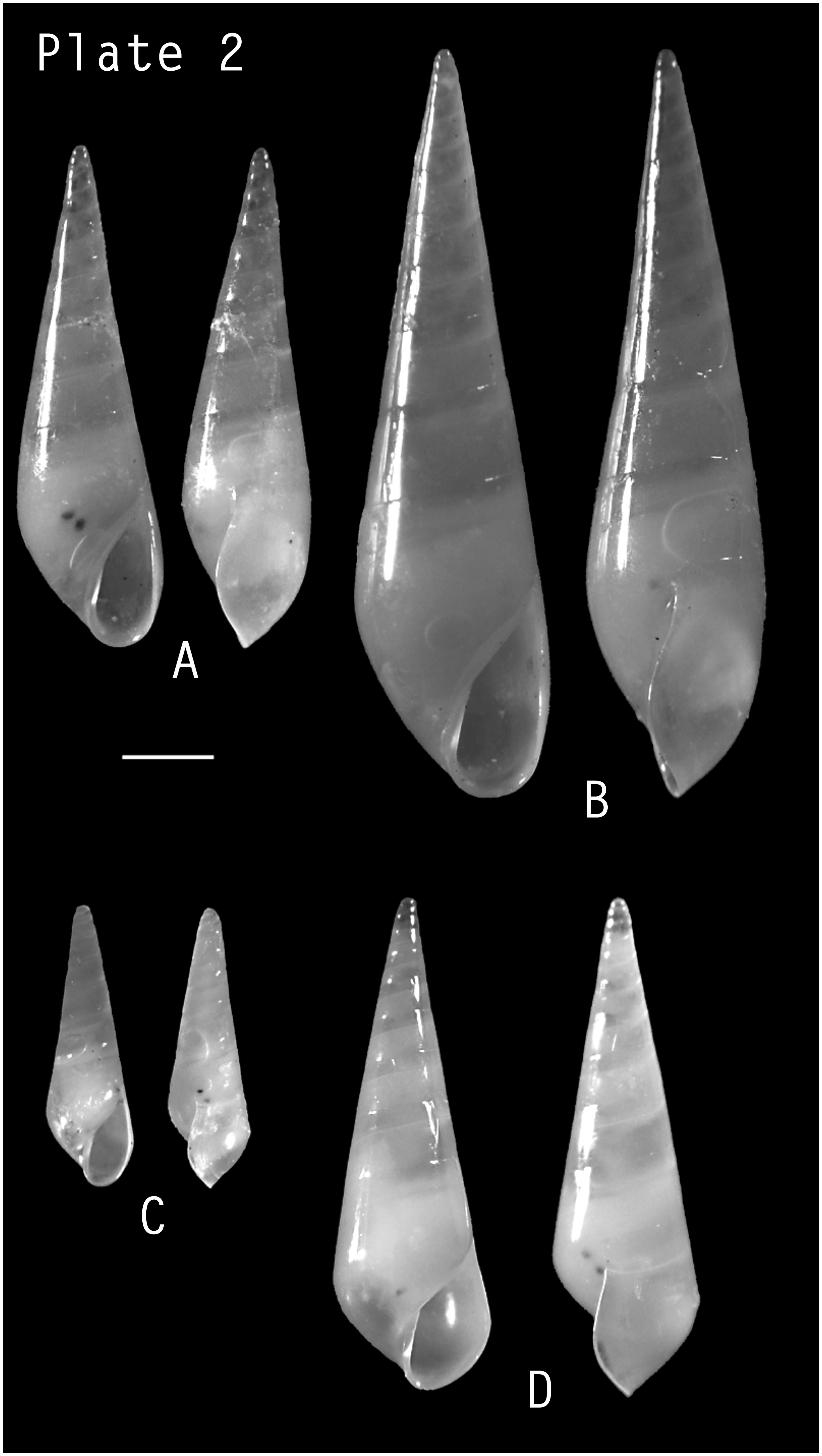

Figure A - B *Polygireulima rutila*; **C - D** *Balcis oldroydae*; CSD station SD18, 11APR03, 31m. All removed from a single specimen of *Pisaster brevispinus.* Scale bar = 1mm

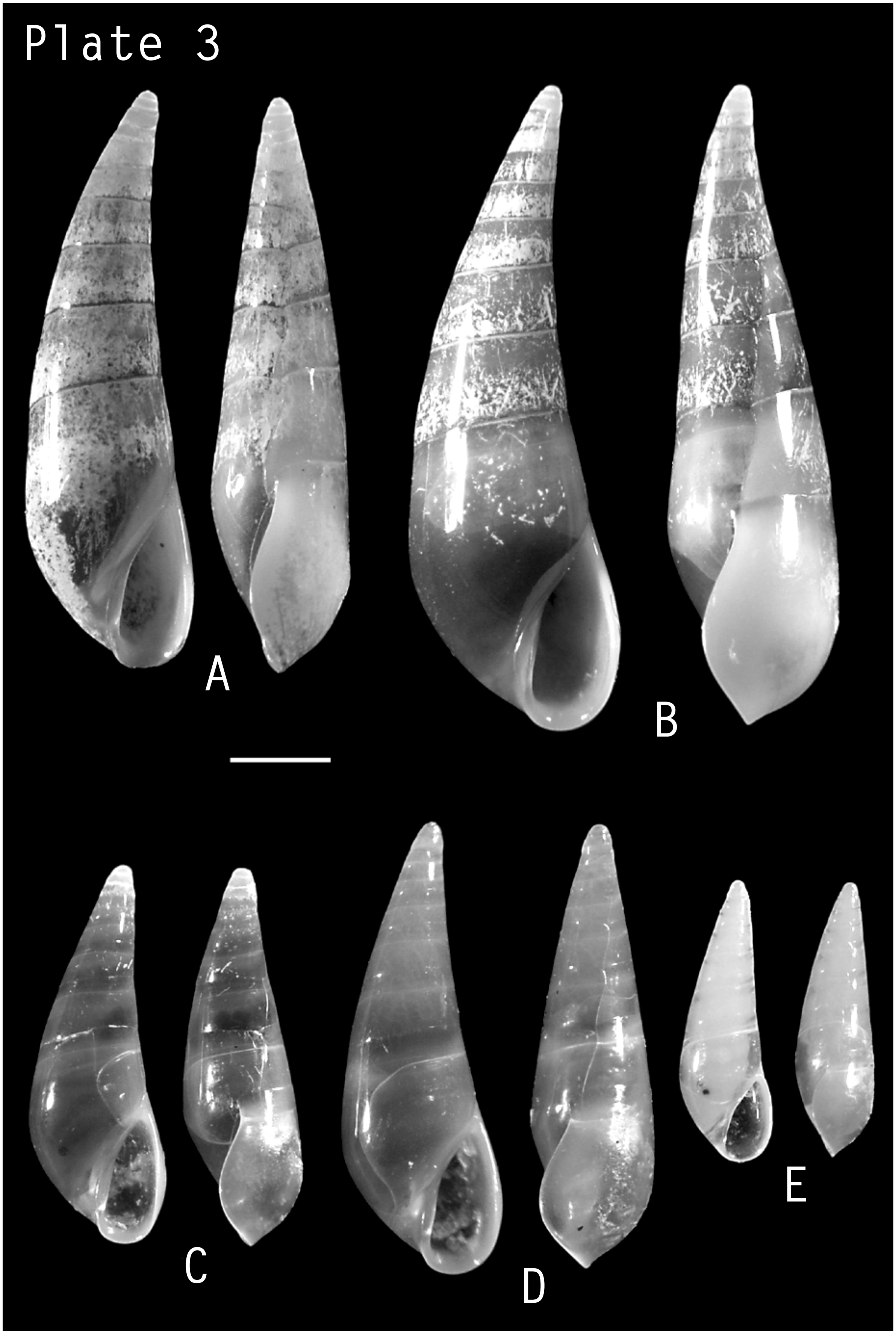

Figure A - B *Vitreolina columbiana*; **A** CSD Sta. E9(2), 7/2/01, 380 ft.; **B** CLA Sta. A1 Santa Monica Bay, 16m, 3JULy02 **C - D** *Vitreolina macra,* CSD voucher # M-176; **C** CSD Sta. ITP 2755(2), 7-9-01, 98 ft.; **D** CSD Sta. ITP 2685(1), 7-28-99, 398 ft.; **E** *Vitreolina yod*, CSD Sta. ITP Reg. 2655 26JUL99, 89 ft.Scale bar = 1mm

Table 1 - Literature reports of southern California Eulimidae; information from describer except where indicated by footnotes

Species	SCAMIT Ed. 4	Geographic Range	Depth Range	Shell Length (mm)	Shell Width (mm)	# Whorls	Host
Balcis berryi (Bartsch, 1917)	√	Del Monte, Monterey; Catalina Island, California	12 fm	6	2	12	
Balcis compacta (Carpenter, 1864)	√	San Pedro, California; Punta Abreojos, Lower California[1]		6. 8 6.7[2]	2.2[1] 2.45[2]	+ 8[1]	
Balcis micans (Carpenter, 1864)	√	Kodiak Island, Alaska to Punta Abreojos, Baja California Sur[3]	30 – 100 m[3]	9.5 – 12.5[1] 10 – 13[3]	3 – 4[1] > 3[3]	Up to 15[3]	Holothuroidea? [3]
Balcis oldroydae (Bartsch, 1917)	√	Kamchemak Bay, Alaska to Isla Cedros, Baja California[3]		9.2	3	14	
Eulima almo (Bartsch, 1917)	√	Santa Rosa Island to San Diego, California	53 – 113 fm	7	1.8	10	
Eulima raymondi Rivers, 1904	√	Monterey Bay, California to Bahía Guatulco, Oaxaca, Mexico[3]	40 – 100 m[3]	to 12[3] 7.8 – 12[11]	1.3 – 2.5[11]	+ 10 – 13[11]	
Haliella abyssicola Bartsch, 1917		Off Columbia River, Oregon to Punta San Pablo, Baja California Sur[3]	400 – 1500 m[3]	10.4 11[3]	2.9	10	
Haliella loman Dall 1908		"16 miles off Point Loma Light, California" [1]	642 – 650 fm[1]	20.2[1]	7[1]	+9[1]	
Hypermastus randolphi (Vanatta, 1899)		Alaska to California[4]	0 – 55 m[4]	6[2] 6.2 - 7[12]	2.3[2] 2.3 – 2.6[12]	8 – 9[4]	*Dendraster excentricus*? [4]
Melanella californica Bartsch, 1917		Catalina Island, California		6.2	2.3	8	
Melanella lastra Bartsch, 1917		San Pedro, California to Magdalena Bay, Lower California	"Deep water off stones"	2.6 – 4.1	1 – 1.6	9 – 10	
Melanella peninsularis Bartsch, 1917		San Diego, California to Magdalena Bay, Lower California		5.2	2.2	11	"On *Haliotis*"
Melanella thersites Carpenter, 1864		Monterey, California to Point Abreojos, Lower California[1]	3 – 13 fm - deep water[1]	5.9 – 6.85 [13]	2.16 – 2.6[13]	12[1]	"on a starfish" [2]
Melanella hemphilli Bartsch, 1917		San Diego, California to Bahia Magdalena, Point Abreojos, Lower California	Intertidal	8.3	3	10	
Melanella rosa Willett, 1944		Redondo, California	125 fm	11	2.5		
Niso attilioi (Hertz & Hertz, 1982)		South of La Jolla Trench, off San Diego California	90 – 140 m	7.57 – 8.9	3.08 – 3.17	10.5	
Niso lomana Bartsch, 1917		Santa Rosa Island and Point Loma, California[1] Cedros Island, Baja California to Angel de la Guarda and Tiburon Islands, Gulf of California[6]	48, 71 - 75 fm 9 – 175 m[6] (183) m[7]	14.5 broken 20[6]	9[6]		
Polygireulima rutila (Carpenter, 1864)	√	Monterey Peninsula, California to Bahía Magdalena, Baja California Sur[3] Gulf of Georgia, B.C., Canada to Magdalena, Baja California[1]	7 – 350 fm[1] 10 - 400 m[3]	6.8[1] 6 – 8[3]	1.9[1]	13[1]	Asteroids[1, 3] holothuroids[8]
Pseudosabinella bakeri (Bartsch, 1917)	√	Carmel Monterey, California to Isla Cedros, Baja California[3]	10 – 150 m[3]	3 – 6[3] 2.7	1.1	9	
Subniso hipolitensi (Bartsch, 1917)		San Diego, California to San Hipolito Point; San Diego, California to Los Angeles Bay, Baja California[9]	2 – 30 m[10]	3.1[1] to 4.5[10]	1.2	10	
Vitreolina columbiana (Bartsch, 1917)	√	Attu, Aleutian Islands, Alaska to Isla Cedros, Baja California[3]	50 m or less[3]	8 – 9.5 6 – 9.5[3]	2.6 – 3	15[3] 12 - 15	*Cucumaria* sp.[3]
Vitreolina macra (Bartsch, 1917)	√	Kamchemak Bay, Alaska to Mazatlan, Mexico[3]	48 fm[22] 20 – 100 m[3]	5.2 – 7.5[11] 6 – 7.5[3]	1.9 - 2.6[11]	11 – 13[11] 13[3]	*Brandtothuria arenicola*[5]
Vitreolina yod (Carpenter, 1857)	√	Santa Maria Basin to Mazatlán, Sinaloa, Mexico[3]	20 – 400 m[3]	2 – 3[3] 1.4 – 3.4[14]		8[3]	

[1] Bartsch, 1917; [2] Vanatta, 1899; [3] McLean, 1996; [4] Warén & Crossland, 1991; [5] Brand & Muniz Ley, 1980; [6] Keen, 1971; [7] Skoglund, 2002; [8] Morris, 1966; [9] Emerson, 1965; [10] Hertz & Hertz, 1982 [11] from species described in Bartsch (1917) synonomized by McLean, 1996. [12] From species described in Bartsch (1917) synonomized by Warén and Crossland, 1991. [13] From species described in Vamatta (1899) synonomized by Bartsch, 1917. [14] Myers, et.al., 2001.

Table 2 – Shell characters for selected species of Eulimidae reported by SCAMIT participants

Species	n	Shell Length (mm) mean ± s. dev.	Maximum shell diameter (mm) mean ± s. dev.	No. of whorls	Outer lip shape	Incremental scar type[1]	Depth range (m)	Agency/Collections represented[3]	Host reported by participating SCAMIT members
Balcis micans	4	6.6 ± 1.6	2.2 ± 0.5	9 – 11	sinuous	vitreolina	19 - 48	CSD, LACSD, CCSF	Unknown
Balcis oldroydae	16	3.9 ± 0.8	1.2 ± 0.2	7 - 10	sinuous	vitreolina	18 - 201	CSD, LACSD, HC,	*Lovenia cordiformis*[2] *Pycnopodia helianthoides*[2] *Pisaster brevispinus*[2] *Allocentrotus fragilis* *Dendraster excentricus*[2,4]
Balcis sp A	2	5.4 ± 0.6	2.0 ± 0.1	9	sinuous	vitreolina	41 – 45	LACSD, CLAEMD	Unknown
Balcis sp SD1	1	5.1 ± na	1.9 ± na	10	sinuous	normal	55	CSD	Unknown
Balcis sp SD2	1	6.6 ± na	2.3 ± na	11	sinuous	normal	14	CSD	Unknown
Melanella rosa	14	5.8 ± 1.5	1.6 ± 0.3	7 – 11	evenly curved	normal	18 -119	CSD, LACSD	Unknown
?*Nanobalcis* sp	1	2.9 ± na	1.2 ± na	8	slightly sinuous	normal?	56	CSD	Unknown
Polygireulima rutila	46	5.4 ± 0.9	1.5 ± 0.2	8 – 11	sinuous	vitreolina	16 – 201	CSD, LACSD, HC, CCSF	*Lovenia cordiformis*[2] *Astropecten verrilli* *Pycnopodia helianthoides*[2] *Allocentrotus fragilis* *Parastichopus californicus* *Pisaster brevispinus*[2] *Dendraster excentricus*[2,4]
Vitreolina columbiana	2	5.6 ± 0.3	1.8 ± 0.2	9 – 10	sinuous	vitreolina	16, 109 - 129	CSD, CLAEMD	Unknown
Vitreolina macra	12	4.4 ± 0.8	1.4 ± 0.2	6 – 9	sinuous	vitreolina	29 - 121	CSD	Unknown
Vitreolina yod	4	2.4 ± 0.4	0.8 ± 0.1	6 – 7	sinuous	vitreolina	27 - 30	CSD	Unknown

[1] after Bouchet and Waren, 1986

[2] *B. oldroydae* and *P. rutila* found together on individual specimens

[3] Material was reviewed from City of San Diego (CSD), Los Angeles County Sanitation District (LACSD), The City of Los Angeles (CLAEMD), The Hertz Collection (HC), and The City and County of San Francisco (CCSF)

[4] Host record from the Hertz Collection.

SCAMIT Voucher Sheet

Species: *Balcis* sp A
Group: Eulimidae (Gastropoda: Mollusca) Vol. 22, No. 2

Date examined: 13 June 2003
Vouchered by: K. Barwick & S. Douglass

Material Examined: 1 spm: LACSD Sta. E-40, Nov-97, 41 m
1 spm: CLAEMD Sta. B10 Santa Monica Bay, 25JAN93, 45 m, # 319

Description: The smooth conical shell is shiny, translucent, and without color. The body whorl is acutely angled. The teleconch has incremental growth scars of the vitreolina type. The outer edge of the oval aperture, when viewed from the side is strongly sinuous. The most projecting part of the outer edge is below the mid-point between the suture line and the base of the shell. A thin callus is present on the columella. The shell length is: 5.0 – 5.8 mm, the diameter is: 1.9 – 2.1 mm, and has 9 – 10 mostly flat sided whorls, see figure 1. The host is unknown.

Related Species: The angled body whorl of *Balcis* sp A gives it a superficial resemblance to *Balcis oldroydae*. *B.* sp A has a much broader base with a more acute angle to the body whorl. For a given number of whorls *B.* sp A has a generally larger shell. *Balcis* sp SD1 and *Balcis* sp SD2 are similar in form to *B.* sp A. *B.* sp A differs from the *B.* sp SD2 in the shape of the outer lip (figure 2B). In addition to the outer lip shape, *B.* sp SD1 also has a more acute angel to the body whorl (figure 2A). *B.* sp SD1 more closely resembles the fossil *Melanella monicensis* Bartsch, 1917 (plate 36, fig. 2)

Distribution: Known only from material examined: Palos Verdes Peninsula and Santa Monica Bay, California.

Comments: Due to the relatively few specimens available, the variability of certain characters, i.e., the outer lip shape, can not be determined. *Balics* sp SD1 was not included in this diagnosis due, in large part, to the differences in this feature. Until more material can be examined, a relatively narrow diagnosis has been adopted for *Balcis*. sp A. The generic placement of this species is based on McLean's (1996) diagnosis.

Literature:

McLean, J. H. 1996. Chapter 1. The Prosobranchia. Pp. 1-160 *in* Scott, P. H., J.A. Blake, and A.L. Lissner, eds. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and the Western Santa Barbara Channel. Volume 9. The Mollusca Part 2 – The Gastropoda. Santa Barbara Museum of Natural History, Santa Barbara, California. 228 pp.

Bartsch, P. 1917. A monograph of west American melanellid mollusks. Proceedings of the United States National Museum 53: 295-356.

Figure 1 – *Balcis* sp A, LACSD Sta. E-40, Nov. 97, 41mm. Scale bar = 1mm

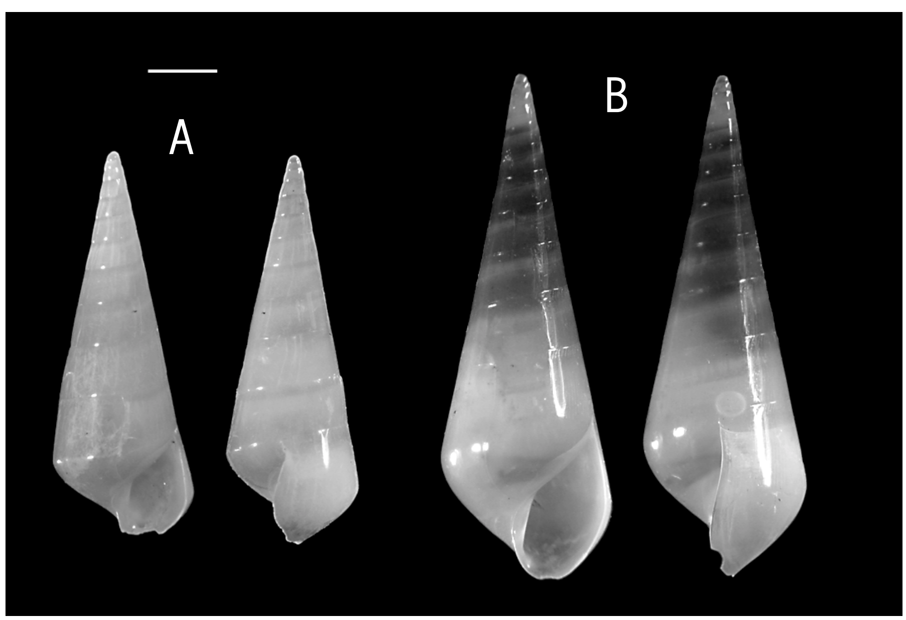

Figure 2 – **A** Balcis sp SD1, CSD Sta.A14(4), 7-18-84, 163 ft.; **B** *Balcis* sp SD2, Bight '98 Sta. 2515, 7-16-98, 14 m. Scale bar = 1mm

Arabella endonata Emerson 1974 SCAMIT Vol. 22 No. 2

CSDLAC specimens 0702-8C4 April 2003
Examined by T. Parker

Literature: Emerson, R. R. 1974. A new species of polychaetous annelid (Arabellidae) parasitic in *Diopatra ornata* (Onuphidae) from Southern California. Bull. So. Cal. Acad. Sci. (73) 1-5.

Hilbig, B. 1995. Chapter 12: Family Oenonidae Kinberg 1865. Emended Orensanz 1990. Taxonomic Atlas of the benthic fauna of the Santa Maria basin and western Santa Barbara channel. Vol. 5: pp. 315-327.

Synonymy: in part *Arabella* sp within Southern California Bight.
in part *Arabella iricolor* within Southern California Bight.

Diagnostic Characters:

1. Four small embedded Òeye spotsÓ at base of prostomium.
2. Maxillae 1 has evenly spaced dentate plate opposite a plate with wide gap between two largest teeth (Figure 1).
3. Two acicula per parapodium.

Related Species and Differences:

Arabella iricolor maxilla 1 with simple falcate tips on both sides, each strongly curved inward. Dentition larger sized on one side (Fig. 4). 2-4 acicula.

Arabella semimaculata maxilla 1 with simple falcate tips wider and less pointed. Dentition smaller and more evenly sized (Fig. 2). 4-6 acicula.

Arabella protomutans maxilla 1 with falcate tips asymmetrical with accessory secondary tooth (Fig. 5). Acicula number unknown.

Arabella pectinata maxilla 1 with falcate tips asymmetrical, with one split into bifid structure. Bifid tip maxilla with larger and longer series of denticles (Fig. 3). Acicula number unknown.

Distribution: Southern California coastal bottoms from intertidal to 137 meters.

Arabella endonata Emerson 1974 SCAMIT Vol. 22 No. 2

Illustrations after Emerson 1974 & Hilbig 1995

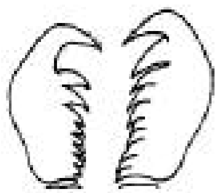

Figure 1. maxilla 1. *A. endonata*

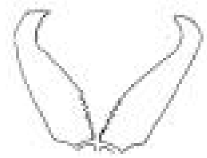

Figure 2. maxilla 1: *A. semimaculata*

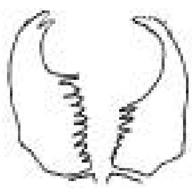

Figure 3. maxilla 1: *A. pectinata*

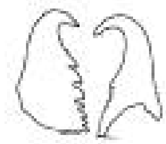

Figure 4. maxilla 1: *A. iricolor*

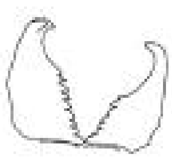

Figure 5. maxilla 1: *A. protomutans*