

**SOUTHERN
CALIFORNIA
ASSOCIATION OF
MARINE
INVERTEBRATE
TAXONOMISTS**



September/October, 2006

SCAMIT Newsletter

Vol. 25, No. 3

Nereis sp A (=former *N. procera* of SCAMIT not Ehlers 1868). Ventral view of oral ring (partially everted proboscis). Specimen from City of San Diego, South Bay Ocean Outfall, station I-35, 7Jan02, 25m depth (scale bar= 0.5mm). Image by R. Rowe
8June02



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The SCAMIT newsletter is not deemed to be a valid publication for formal taxonomic purposes.

SEPTEMBER 06 MINUTES

The September meeting was held at the Santa Barbara Museum of Natural History which is always a beautiful venue. It was well attended with 14 people present from various organizations and walks of life.

Kelvin Barwick called the meeting to order at approximately 9:45 a.m. and seeing as there was such a large, diverse crowd, called for people to give a brief introduction of themselves. After we had all met, Kelvin announced upcoming meetings.

Don Cadien (LACSD) had the floor next and briefly reviewed new literature of interest. He had brought copies of the July 2006 AMS/WSM meeting abstracts, and also passed around a new book of interest to slug enthusiasts - Caribbean Sea Slugs: A field guide to the opisthobranch mollusks from the tropical northwestern Atlantic.

Ron Velarde reminded us that the next International Polychaete meeting will be held in August of 2007 in Portland Maine.

With that it was time for Kelvin to begin his powerpoint presentation on the beautiful and mysterious world of Nuculanids. Below is his write up of the taxonomic portion of the meeting.

**A COMPARISON OF THREE CLOSELY RELATED SPECIES OF *NUCULANA* LINK,
1807 PRESENTED AT SCAMIT ON SEPTEMBER 11, 2006
By Kelvin Barwick (CSD) and Paul Valentich-Scott (SBMNH)**

Recently we undertook a review of three closely related species of *Nuculana* reported by SCAMIT. Material was reviewed from City of San Diego (CSD), Los Angeles County Sanitation District (CSDLAC), The City of Los Angeles (CLAEMD), and The Santa Barbara Museum of Natural History (SBMNH). The subsequent information was presented at the September 11 SCAMIT meeting. Below is a brief synopsis of the results of our endeavors.

The three species in question were:

- Nuculana taphria* (Dall, 1896)
- Nuculana penderi* (Dall and Bartsch, 1910)
- Nuculana elenensis* (G. B. Sowerby I in Broderip and G. B. Sowerby I, 1833)

We began with a partial nomenclatural history for *N. taphria*. *Nucula caelata* Hinds 1843 was illustrated by Hinds in 1844-1845 (Fig. 1). Dall (1896) noted that *Nucula caelata* Hinds, 1843 was preoccupied by

Upcoming Meetings

April 9 - SCAMIT Invert List ed. 5 review, Crustacea at LACSD Lab

April 23 - SCAMIT Invert List ed. 5 review, Misc. Phyla at CSD Lab

May 7 - SCAMIT Invert List ed. 5 review, Polychaeta at the LACM, part II

May 21 - SCAMIT Invert List ed. 5 review, remaining issues clean up

June 11 - TBA

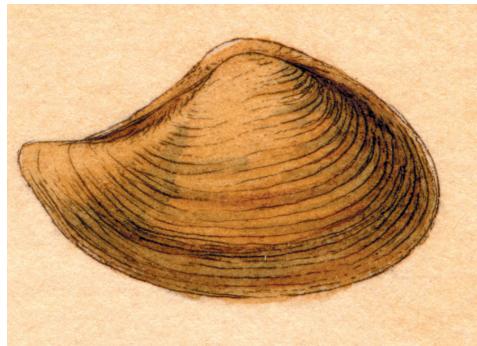


Figure 1 – *Nucula caelata* original illustration of type (Hinds, 1844-1845)



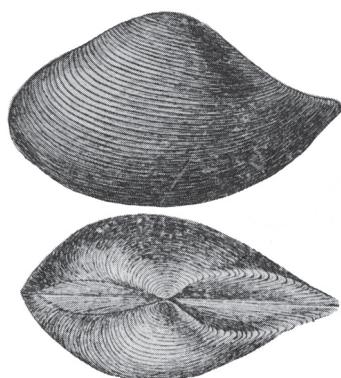


Figure 2 – *Nuculana taphria*
modified from Keen, 1971
(From Dall, 1897)

Nucula coelata Conrad, 1833 and substituted *Leda taphria*. He did this without designating a type or providing a description. In 1897 Dall illustrated a USNM specimen (Fig. 2) as *L. taphria*. This image is reprinted by Keen, 1971. Hertlein and Grant (1972) stated that Dall's specimen has no type status, as it was a simple renaming of a homonym. They further conclude that, while recognizing the two forms as the same species, the illustration of *Nucula caelata* by Hinds (Fig 1) is the type for *Nuculana taphria*. Hinds' type material is lost at the BMNH.

Hertlein and Grant (1972) also noted that the description of *Leda taphria* in Oldroyd, 1925 is from Arnold, 1903. Arnold's illustration does not compare favorably with either Hinds' or Dall's. Given these facts, specimens from the participating agencies were compared with Hinds' illustration. It was agreed by all present that they were a good match. See Fig. 3 for a growth series.

Prior to the September 11 meeting the authors compared specimens of *N. penderi* (Fig. 4) from the CSD collection with type material of *Nuculana penderi redondoensis* J.Q. Burch, 1944 (Fig. 5), a synonym (Coan, et al, 2000), along with other lots in the SBMNH collection. After much discussion and without going into too much detail it was agreed that some lots were better fits than others, it was difficult to say whether the differences were ecomorphs or represented different species. It was decided to present these findings to the SCAMIT members at the meeting. At that meeting it was agreed that SCAMIT would continue to use this name until more research can be conducted. See the growth series Fig. 6-8.

A comparison of the SCB material with images of the syntypes at the BMNH of *N. elenensis* revealed that they are not the same species (Fig. 9). *N. elenensis* is a Panamic species ranging from Cruz de Huanacaxtle, Nayarit, Mexico to Bahia de Sechura, Peru, (Coan and Valentich-Scott, in preparation). All southern California records for this species are called into doubt. It is unclear at this juncture what name should be applied. Further research is needed to determine whether the SCB material represents an undescribed species or simply an overlooked species. At the meeting it was agreed that, in the interim, this form will be given a provisional name under SCAMIT. See the attached provisional voucher sheet for *Nuculana* sp A.



Figure 3 – *Nuculana taphria* CLAEMD: HM9/LAH,
28JUL05, 24 m (Length ranges from 2.5 mm to 13.6 mm)



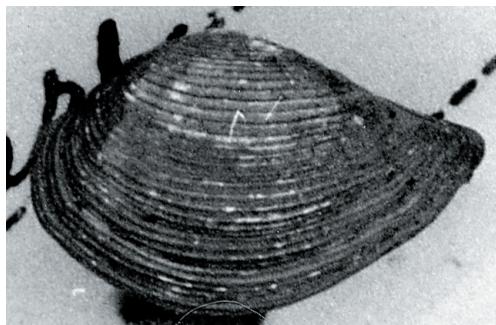


Figure 4 – *Nuculana penderi* holotype USNM 211606 as Leda penderi (Length ~ 8 mm) (Image modified from Frank R. Bernard's original unpublished photo.)

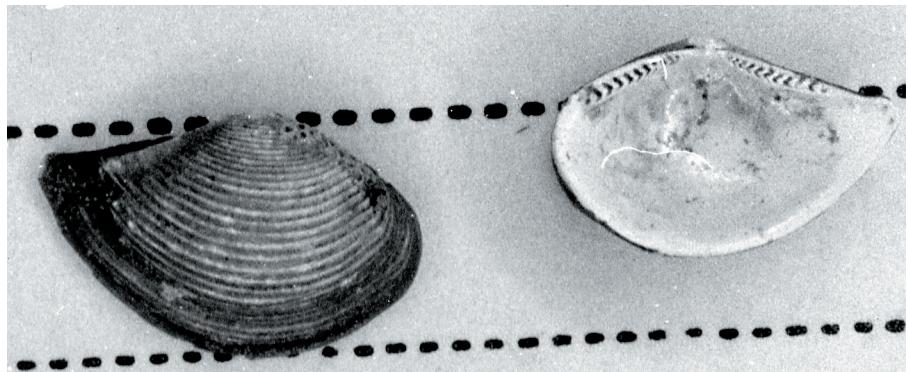


Figure 5 – *Nuculana penderi redondoensis* holotype CAS Stanford 7871 (Image modified from Frank R. Bernard's original unpublished photo.)

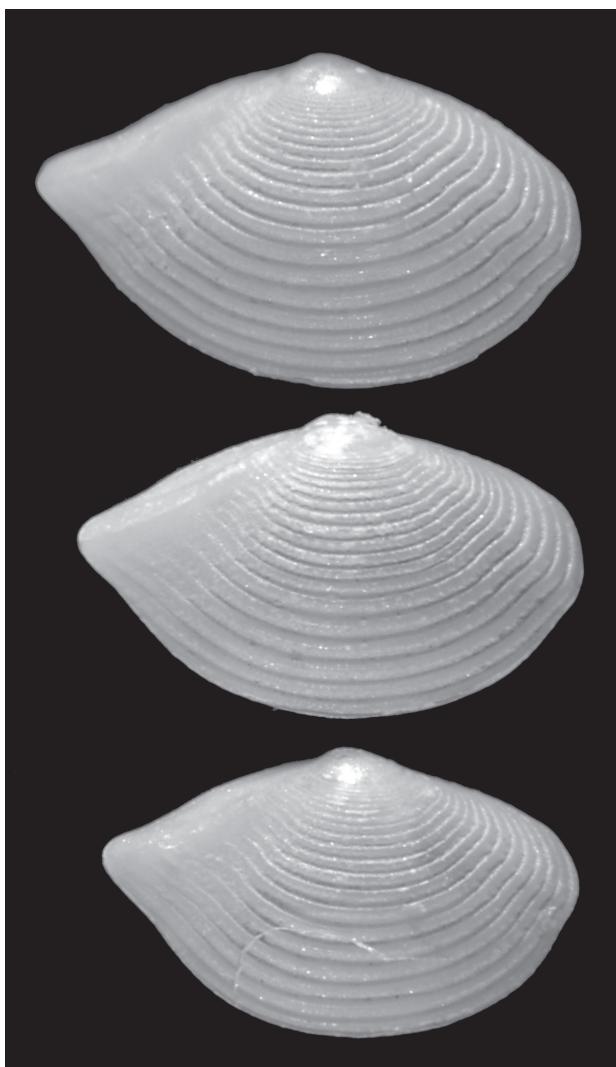


Figure 6 – *Nuculana penderi* LACSD: E-30, Nov., 1997

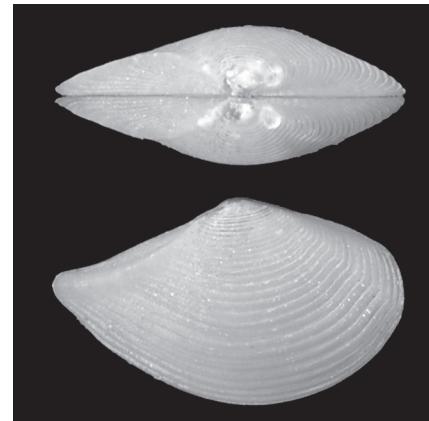


Figure 7 – *Nuculana penderi* dorsal and lateral view, LACSD E-30, Nov. 1997 (Length = 5.4 mm)



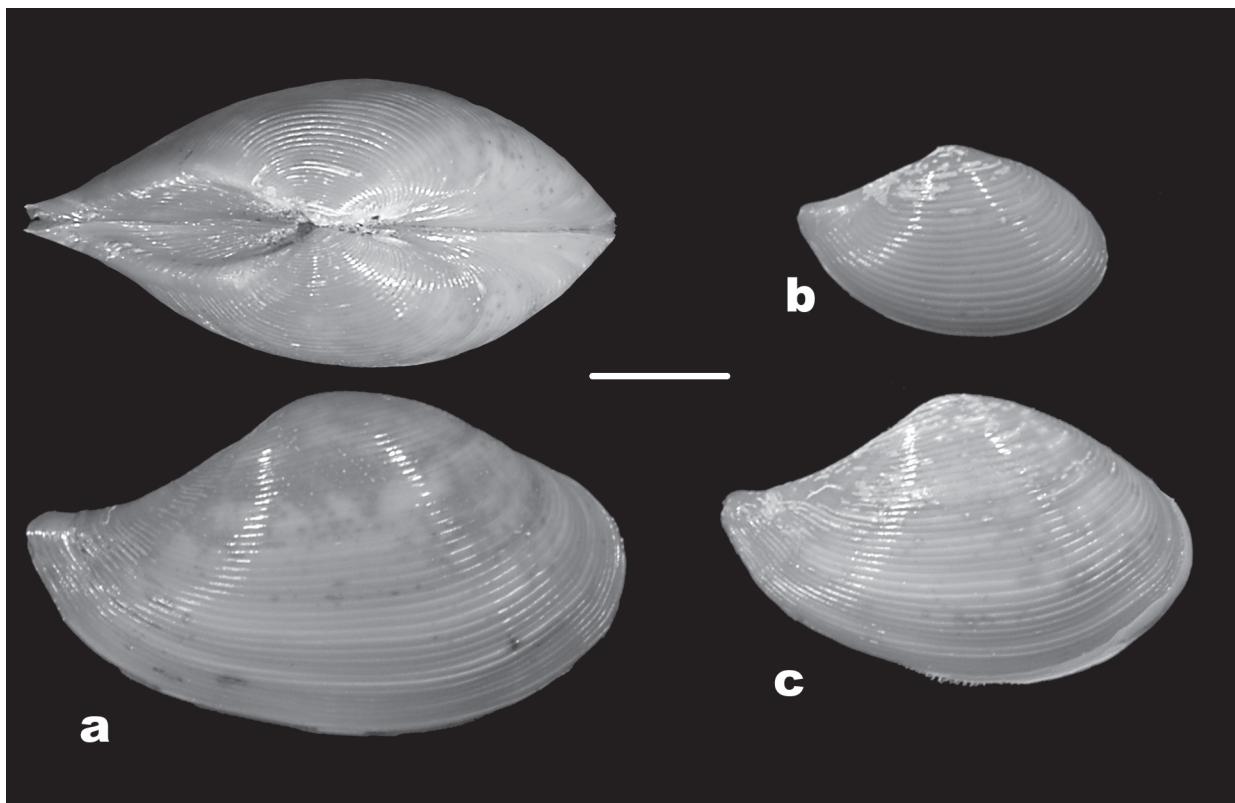


Figure 8 – *Nuculana penderi* a. dorsal and lateral view, CSD: I33(1), 6JUL05, 32 m (K. Barwick personal collection 304); b. CSD: I31(1), 10JAN06, 21 m; c. CSD: I4(2), 10JAN97, 64 ft (K. Barwick personal collection 124) (Scale bar = 5 mm).



Figure 9 – *Nuculana elenensis* Sowerby syntype BMNH 1967975

OCTOBER 06 MINUTES

The purpose of the meeting was to understand the characters used to distinguish the several *Aoroides* taxa that have been reported from the Southern California Bight (SCB), clarify the distinguishing characters of *Aoroides* sp A SCAMIT 1998, and relate the importance of Conlan and Bousfield (1982). The meeting began with a slide show where Dean introduced the characters he uses to identify *Aoroides* (Amphipoda: Aoridae), which generally follow those listed by Conlan and Bousfield (loc cit.) (see below). Afterwards, specimens were reviewed and discussed. The interesting questions that were in need of resolution included the lack of records of *Aoroides* sp A SCAMIT 1998 from collections outside of the San Diego area, and verification of *A. secundus* Gujanovae. First, specimens of *A. secundus* were reviewed and distinguished from *Aoroides* sp A by the absence of a peduncular process on uropod 2 and the presence of distinctive maxilliped outer plate teeth (see below). Specimens of *Aoroides* sp A from San Diego collections were reviewed and distinguishing characters verified. However, review of specimens listed as *A. spinosus* Conlan and Bousfield from Los Angeles County Sanitation District (LACSD) collections, were found to be large specimens of *Aoroides* sp A. These specimens are to be reviewed by LACSD staff to verify these tentative identifications made during the meeting. Other specimens from LACSD collections were examined and determined to be in need of review in light of the characters presented at the meeting.

The list of characters discussed at the meeting is presented below with notes from the meeting and subsequent review integrated where appropriate. A revised table comparing *Aoroides* sp A from those two species with which it is most likely to be confused (*A. secundus* and *A. inermis* Conlan and Bousfield) is also presented below.

Mandibular palp, article 2: the presence/absence of a seta in the distal one-third of the article. Typically, this is a long, thin seta and easy to see; although it is sometimes broken and both palps should be examined if the first examination finds the seta absent.

- o The seta is absent in *Aoroides exilis* Conlan and Bousfield and *A. spinosus*, *A. secundus*, *A. nahili* JL Barnard, and *Aoroides* sp A
- o The seta is present in *A. columbiae* Walker, *A. intermedius* Conlan and Bousfield, and *A. inermis*
- o *A. columbiae* reported from Hawaii by JL Barnard (1970) depicts a male specimen without a seta on article 2 (see Figure 32e). Conlan and Bousfield (1982) indicate that this record, among others from southern California and Japan is in doubt (page 92)

Maxilliped outer plate teeth: presence/absence of cusps. The maxilliped must be removed, mounted on a slide, viewed with a compound scope at 200 to 400 power to see the inner marginal teeth and cusps. The cusps vary in size and number depending on the species, sex, and maturity of the specimen. The condition of the outer plate can be used to distinguish 4 SCB species: *Aoroides secundus*, *A. columbiae*, *A. intermedius*, and *A. inermis*.

- o A specimen of *A. secundus* collected from San Diego Bay during Bight'98 was reviewed and found to have distinctive, strong, sharp cusps on the outer plate teeth
- o The other 3 taxa (*A. columbiae*, *A. intermedius*, *A. inermis*) are distinguished,



in order, by decreasing numbers of cusps from strongly serrated with 1–4 cusps on each of the lower teeth, to weakly cusped with 0–1 cusps per lower tooth, to entirely smooth lower teeth

- o *Aoroides* sp A has outer plate teeth that appear more triangularly shaped than most of the other taxa (i.e., less broad at their mid-point and more narrow and tall distally), with 1–2 cusps, and finely toothed (serrated) lateral margins on the upper teeth and smooth margins on the lower teeth

Uropod 2 peduncle process: the presence/absence and relative size of a ventral disto-medial process of the peduncle. It is sometimes difficult to distinguish whether or not this process is present. In many cases, it may be necessary to remove the second uropod and mount it on a slide to reliably determine its presence or absence.

- o This process is absent and the distal margin of the peduncle is straight in *A. secundus* (and *A. nahili*)
- o The process is present, but is extremely small, low, broadly triangular (relatively), and easily obscured by the uropodal rami in *Aoroides* sp A. One must look closely when dealing with this taxon. If the tooth appears to be absent, but the distal end of the peduncle does not appear straight, you must look more closely, remove the uropod, and view it under a compound microscope.
- o According to the illustrations in Conlan and Bousfield (1982), *Aoroides exilis*, *A. columbiae*, and *A. intermedius* appear to have relatively strong peduncular processes on uropod 2 that reach nearly one-half the length of their respective rami. I have this to be true for *A. exilis* and *A. columbiae*, but I have not examined specimens of *A. intermedius*.
- o *Aoroides spinosus* and *A. inermis* have relatively short processes that appear to reach $\leq 1/4$ the length of the rami

Spination of uropod 3 rami: The presence or absence of “strong” spines on the outer ramus of uropod 3 can be helpful, although distinguishing “strong” spines from “small” ones can sometimes be difficult.

- o “Strong” spines are illustrated for *A. exilis* and *A. spinosus* (Conlan and Bousfield loc cit.: Figures 9, 10)
- o “Small” spines are illustrated for *A. inermis*, *A. intermedius*, and *A. columbiae* (Conlan and Bousfield, loc cit.: Figures 4, 5, 7, 8)
- o *Aoroides* sp A has 1–2 strong spines on the outer ramus of uropod 3

Posterior marginal setae of gnathopod 1 basis in males: This character can be helpful to separate out two species from the rest when males are present.

- o Males of *A. exilis* and *A. spinosus* have pairs of setae on the posterior margin of the basis of gnathopod 1; all the other taxa discussed above do not.



Female gnathopod 2 basis distal group of setae: The presence or absence of a group of setae distally on the basis of gnathopod 2 in females was found to be unreliable and should not be used. This character was added (by Dean) prior to the meeting as being potentially useful, but determined to be unreliable through the course of specimen reviews at the meeting.

Aoroides spp Character Table

Character	<i>Aoroides secundus</i>	<i>Aoroides</i> sp A	<i>Aoroides inermis</i>
Mn palp	bare	bare	setose
Mxpd outer plate	all teeth w/ 1–3 distinct cusps, teeth acutely tipped	triangularly shaped w/ 1–2 cusps and finely toothed (serrated) margins	distal teeth w/ 0–3 cusps, proximal teeth smooth
Male Cx1	broad, produced w/ 4–5 long terminal setae	broad, distally produced, w/ strong terminal spine	narrowed, unproduced, w/ setal group distally
Male Gn1 basis, anterior /posterior marginal setae	dense plumose setose (juveniles w/ fewer simple setae) / bare	few widely spaced setae (6–10) in spms from SD, but dense in presumed spms from LACSD/ bare	dense setose / bare (lateral groups of setae present)
Male Gn1 carpus	densely setose; juveniles w/ few setae	bare anteriorly	setose
Female Gn1 basis	w/ 1+ long (\sim basis width) distal setae	single short ($< \frac{1}{2}$ basis width) distal seta present	w/ 2+ long ($>$ basis width) distal setae
Ur2 peduncle	Process absent	w/ very small process	w/ small ($< 1/5^{\text{th}}$ rami) process
Ur3 outer ramus	1+ large spine(s)	Bare	Bare



BIBLIOGRAPHY

- Arnold, R. 1903. The paleontology and stratigraphy of the marine Pliocene and Pleistocene of San Pedro, California. California Academy of Sciences, Memoirs 3. 420 pp.
- Barnard, J.L. 1970. Sublittoral Gammaridea (Amphipoda) of the Hawaiian Islands. Smith. Contr. Zool., No. 34.
- Coan, E., V., P. Valentich-Scott and F. R. Bernard. 2000. Bivalve seashells of western North America: Marine Bivalve Mollusks from arctic Alaska to Baja California. Santa Barbara Museum of Natural History, Santa Barbara, California. 764 pp.
- Conlan, K.E. and E.L. Bousfield. 1982. The amphipod superfamily Corophioidea in the northeastern Pacific region: 2. Family Aoridae. Systematics and distributional ecology. Natl. Mus. Nat. Sci. (Canada) Publ. Biol. Oceanogr., 10(3): 77-101.
- Dall, W. H. 1896. Note on *Leda caelata* Hinds. The Nautilus 10(6): 70.
- Dall, W. H. 1897. Notice of some new or interesting species of shells from British Columbia and the adjacent region. Natural History Society of British Columbia, Bulletin 2. 1-18.
- Hertlein, L. G. and U. S. Grant, IV. 1972 The geology and paleontology of the marine Pliocene of San Diego, California. Part 2B: Paleontology: Pelecypoda. San Diego Society of Natural History, Memoirs 2. 135-409.
- Hinds, R. B. 1844-1845. The zoology of the voyage of H. M. S. Sulphur, under the command of Capt. Sir Edward Belcher, ... during the years 1836-42, Vol. 2 Mollusca. London, Smith, Elder & Co. 72 pp.
- Keen, A. M. 1971. Sea shells of tropical west America; marine mollusk from Baja California to Peru, 2nd ed. Stanford, California, Stanford University. 1064 pp.
- Oldroyd, I. S. 1925. The marine shells of the west coast of North America, Vol. 1 Bivalvia. Stanford University Publication, University Series, Geological Sciences 1(1) 247 pp. (1978 reissue).
- Valdés, Angel, Hamann, Jeff, Behrens, David W., DuPont, Anne. 2006. Caribbean Sea Slugs: A field guide to the opisthobranch mollusks from the tropical northwestern Atlantic. Sea Challengers Natural History Books, Etc., Gig Harbor, Washington. 288pp.

CORRECTION

Member Rick Rowe (CSD) caught a mistake in our last newsletter and we are grateful for his sharp eye and bringing the following to our attention: "In the last paragraph on polychaete stuff there is a reference to *Polydora hoplura* with the describer as "Klapure". Actually the describer is Claparède, 1870".

PISTA CLARIFICATION

Attached at the end of this newsletter is a very detailed and informative hand-out on *Pista* created by Rick Rowe. All polychaete workers should review it as it clarifies some of the recent issues with the SCB *Pista* species.



NEREIS SP A

Continuing on with information for polychaete enthusiasts, member Bill Furlong (CSDLAC) has created a SCAMIT voucher sheet for *Nereis* sp A. You will find this invaluable document also attached at the end of the NL.

ELECTION

Due to the pulmonate gastropod speed with which the newsletters are being published, we are obviously behind on “current” events. Therefore, even though this is technically the September-October 2006 newsletter, it is being published in April of 2007, which means it is time for SCAMIT elections. You will find below the candidate statements, and attached at the end of the newsletter, the SCAMIT Ballot. You will notice one striking change among the list of candidates, which is relatively rare in SCAMIT elections – SCAMIT President Kelvin Barwick has resigned his post to pursue other opportunities and SCAMIT member Larry Lovell has been nominated and accepted the nomination. Please take the time to cast your vote and remember, write-in candidates are always welcome.

CANDIDATE STATEMENTS**PRESIDENT****Larry Lovell**

I graduated with a BS in Biology from USC (University of South Carolina) in 1973. I began my career as a marine invertebrate taxonomist in 1974 at the USC Baruch Field Station in Georgetown, South Carolina, where I received my initial training from Dan Dauer. I came to southern California in 1975 to work on the BLM project in the USC worm lab with Kristian Fauchald where I began specializing in polychaete taxonomy. I have been working in southern California since that time in both academic settings (USC and SIO) and environmental consulting (MEC/Weston and independent contractor). I currently work at the Marine Biology Laboratory of the Los Angeles County Sanitation Districts. I have given oral and poster presentations at SCAS meetings, International Polychaete Conferences, and published in the scientific literature. I am a charter member of SCAMIT and served as vice-president from 1989-1994. I am an active member of SCAMIT and have led several meetings and workshops covering various polychaete families. As President, I plan to continue SCAMIT’s original goal of standardizing and promoting local marine invertebrate taxonomy and to provide leadership and direction in addressing the organization’s challenges and opportunities.

VICE-PRESIDENT**Leslie Harris**

Collections manager of the Allan Hancock Foundation Polychaete Collection, at the Los Angeles County Museum of Natural History. Ongoing research centers on taxonomy of the polychaete fauna of pacific North America, polychaete-algal associations (especially in *Macrocystis*), introduced species, and Caribbean reef polychaetes.



SECRETARY

Megan Lilly

Graduated from Humboldt State University in 1991 with a B.S. in Marine Biology. From 1991-1993, worked at the Santa Barbara Museum of Natural History where the taxonomy of marine mollusks was studied under Dr. Eric Hochberg, Paul Valentich Scott, and Henry Chaney. Currently working as a marine biologist for the City of San Diego's Ocean Monitoring Program. Specialties include echinoderms, miscellaneous phyla and mollusks with an emphasis on cephalopods.

TREASURER

Cheryl Brantley

Cheryl is a marine biologist with the County Sanitation Districts of Los Angeles County. She has worked for the Districts for over 16 years, primarily as a polychaete taxonomist. She graduated with her B.A. degree in Aquatic Biology from the University of California, Santa Barbara in 1985. She has formerly served as Secretary of SCAMIT from 1994-1998.

Please visit the SCAMIT Website at: www.scamit.org

SCAMIT OFFICERS

If you need any other information concerning SCAMIT please feel free to contact any of the officers at their e-mail addresses:

President	Kelvin Barwick (619)758-2337	kbarwick@sandiego.gov
Vice-President	Leslie Harris (213)763-3234	lharris@nhm.org
Secretary	Megan Lilly (619)758-2336	mlilly@sandiego.gov
Treasurer	Cheryl Brantley (310)830-2400x5605	cbrantley@lacsd.org

Back issues of the newsletter are available. Prices are as follows:

Volumes 1 - 4 (compilation).....	\$ 30.00
Volumes 5 - 7 (compilation).....	\$ 15.00
Volumes 8 - 15	\$ 20.00/vol.

Single back issues are also available at cost.

The SCAMIT newsletter is published every two months and is distributed freely through the web site at www.scamit.org. Membership is \$15 for the electronic copy available via the web site and \$30 to receive a printed copy via USPS. Institutional membership, which includes a mailed printed copy, is \$60. All new members receive a printed copy of the most current edition of "A Taxonomic Listing of Soft Bottom Macro- and Megainvertebrates ... in the Southern California Bight." The current edition, the fourth, contains 2,067 species with partial synonyms. All correspondences can be sent to the Secretary at the email address above or to:

SCAMIT
C/O The Natural History Museum, Invertebrate Zoology
attn: Leslie Harris
900 Exposition Boulevard
Los Angeles, California, 90007

SCAMIT Voucher Sheet

Species: *Nuculana* sp A

Group: Nuculanidae

Vol. 25, No. 3

Date examined: 11 September 2006

Vouchered by: P. Valentich-Scott & K. Barwick

Material Examined: 3 spm: CSD Sta. B11(2), 14JUL92, 288 FT, SBMNH#80296

1 spm: CSD Sta. B11(1), 14JUL92, 288 FT, SBMNH#80298

1 spm: CSD Sta. B5(2). 14JUL92, 200FT, SBMNH #80297

14 spm: CLAEMD Sta. FB17, SMB, 25JUL05, 115m

1 spm: LACSD Sta. 9B JUL96

Synonyms: *Nuculana elenensis* of authors SCB not (G. B. Sowerby I in Broderip and G. B.

Sowerby I, 1833)

Nuculana sp SD1 Barwick, 1992

Description: Shell periostracum silky, with lighter colored streaks radiating from the umbone to the outer margin of the shell (seen in dry specimens); color is light tan to dirty white (Fig. 1-3) Sculpture of slightly rounded commarginal ridges evenly spaced ending abruptly at the posterior-dorsal slope. Posterior produced in sharp point, acute. Shell moderately inflated with narrow escutcheon. Lunule shallow, narrow (Fig. 3). Length to 6 mm.

Related Species: *Nuculana elenensis*, unlike *N. sp A*, has a pointed strongly recurved posterior. *N. taphria* (Dall, 1896), when compared to *N. sp A*, has a more rounded, produced posterior. The commarginal sculpture of heavy ribs becomes obsolete along the posterior-dorsal slope. *N. penderi* (Dall & Bartsch, 1910) has a shorter, less acute posterior, slightly recurved in larger specimens. The shell of *N. penderi* is typically plumper and can reach a much larger size than *N. sp A*. *N. eburnean* (G. B. Sowerby, 1833), a panamic species, possesses an acute pointed posterior but has fine dense commarginal sculpturing.

Distribution: Point Loma to Santa Monica Bay, California. Depth for CSD records: 60 – 200 m.

Comments: Historically this species has been identified as *N. elenensis* by workers in the SCB. Based, in part, on these records Coan, et al (2000) reported the distribution for *N. elenensis* to occur as far north as Santa Monica Bay. Subsequently Coan and Valentich-Scott (in preparation) now believe it to be restricted to the Panamic Province. A comparison of the SCB material with the images of the syntypes from the BMNH bears this out. All southern California records for *N. elenensis* are in doubt.

Literature: Coan, Eugene V., Paul Valentich-Scott and Frank R. Bernard. 2000. Bivalve Seashells of Western North America: Marine Bivalve Mollusks from Arctic Alaska to Baja California. Santa Barbara Museum of Natural History, Santa Barbara, California. 764 pp.

SCAMIT Voucher Sheet

Species: *Nuculana* sp A

Group: Nuculanidae

Vol. 25, No. 3



**Fig. 1 – CLAMED: FB17/SMB,
115m, 25JUL05 (Length ranges from
5.5 mm to 2.5 mm.) Dry mount**



**Fig. 2 – LACSD: 9B 7/1996
(length = 4.9 mm) Dry mount**



**Fig. 3 – CSD:
B11(2), 14JUL92,
288 FT,
SBMNH#80296
(Length ranges from
5.2 mm to 2.6 mm.)
Dry mount**

The Nomenclature of *P. agassizi*, *P. brevibranchiata*, and *P. alata*

R. Rowe 1 March 2007

Hilbig 2000 described two species, *P. agassizi* and *P. percyi*. Hilbig considered *P. brevibranchiata* Moore 1923 to be unavailable as a valid name. SCAMIT (guided by the careful consideration of the historical descriptions and nomenclatural rules by Leslie Harris) considers *P. brevibranchiata* to be available and the correct name to use for the holotype of *P. fimbriata* (as did Hartman 1959, 1969 and other authors), and *P. percyi* Hilbig 2000 a junior synonym of *P. brevibranchiata*. Moore lost the 1911 manuscript in which *P. fimbriata* was described (although the holotype was deposited at the USNM), but did refer to it as *P. brevibranchiata* in his 1923 manuscript.

Chamberlin's 1919 holotype for *P. brevibranchia* (note this is not "brevibranchiata") was examined by Ruff and information he provided to Hilbig enabled her to differentiate it from Moore's *P. fimbriata* holotype. But *P. brevibranchia* is a homonym and unavailable, consequently *P. agassizi* Hilbig, 2000 becomes the valid name.

Originally Harris suspected that Hilbig's specimen of *P. agassizi* was simply aberrant with an extra pair of very small lappets (and that name a synonym of *P. brevibranchiata*). Only the single, holotype specimen of *P. fimbriata* (= *P. brevibranchiata*) was examined by Ruff (or Hilbig 2000) so variation in the last lappets could not have been evaluated. After recently reviewing many *Pista* specimens from shallow waters along the California coast, Harris decided that two similar, but differentiable taxa, *P. agassizi* and *P. brevibranchiata*, do exist. She saw specimens that match Hilbig's description of *P. agassizi* but only north of Point Conception (Chamberlin's type specimen of *P. brevibranchia* is from Mendocino, California).

Many taxonomists in the Northeastern Pacific identified common subtidal (often embayment), soft substratum specimens as *Pista alata*. After examining Moore's holotype specimen several years ago, SCAMIT members realized that their use of *P. alata* was in error. While the dorsal membrane in the common specimens is developed, it is usually notched and never projecting forward as a rounded process like it does in the *Pista alata* holotype. The common subtidal specimens match *Pista brevibranchiata* (as *P. percyi* Hilbig 2000).

Below is a summary of the Harris observations and comments to SCAMIT. For clarification of SCAMIT recognized nomenclature, see Table 1.

***Pista agassizi* Hilbig 2000**

- Occurs on hard substrata in tubes among algae and often intertidal
- Chamberlin's 1919 holotype specimen described as *Pista brevibranchia* was collected intertidally in Mendocino, California.
- May occur only north of Pt. Conception
- The dorsal membrane is small and not notched.
- A small frill of a lappet (the last) is present on segment 7.
- Specimens previously referred to this taxon in Southern California, because of confusion of the proper nomenclature, are likely *Pista brevibranchiata*.

***Pista brevibranchiata* Moore 1923**

- Found in soft substrata (infaunal) or in sediments trapped within hard substrata
- Builds smooth, thick walled tubes
- Common in Southern California in shallow water including embayments
- The dorsal membrane projects anteriorly and normally possesses a pair of notches (variable).
- No lappets present on segment 7.
- Dark staining is present on the ventral shields, dorsally across the first few setigers, and extending posteriorly just above the notosetal fascicles.
- Eggs are very small (not noticeable).
- Specimens previously referred to *Pista percyi* in Southern California are likely *Pista brevibranchiata*.
- Before the year, 2000, most of the specimens referred to *Pista alata* in Southern California are likely *Pista brevibranchiata*.

Pista alata Moore 1909

- Hilbig's 2000 description and illustrations are good representations of the condition of Moore's type specimen from intertidal San Diego (Mission Bay) except that the branchiae in the specimen are more arborescent than Hilbig's (Ruff's) illustration.
- SCAMIT viewed Moore's type and the forward projecting dorsal membrane is distinctive.
- Likely occurring only in intertidal or very shallow embayments and harbors, and apparently rare.
- Specimens identified as *Pista alata* in Southern California before 2000 are likely *Pista brevibranchiata* because of the misinterpretation of the dorsal membrane morphology by SCAMIT (and other) taxonomists.

***Pista* spp Recently Reported to SCAMIT as Provisional Species**

***Pista* sp 1 fide Harris**

- This is a small species found in kelp holdfasts (currently).
- This taxon exhibits Form 1 (*Pista* spp sensu stricto) morphology (see Table 2).
- *P. brevibranchiata* is morphologically similar but the tube of *P. sp 1* differs because its construction includes some detritus.
- Light staining ventral shields are present, but there is no stain on the dorsum above the notosetal fascicles.
- Eggs are very large compared to the specimen size and noticeable in preserved specimens.

***Pista* sp SF1 fide Norris**

- Reported from San Francisco Bay.
- This taxon exhibits Form 1 (*Pista* spp sensu stricto) morphology (see Table 2).
- Methyl green staining is light and restricted (very little stain).
- Branchiae have a very long primary shaft (before the first division).
- Eyes are present (unusual for *Pista*).

***Pista* sp beta fide Lovell**

- Reported from Santa Monica Bay and off the Palos Verdes Peninsula in Southern California (30m).
- This taxon is recognized by SCAMIT as a staining variant of *Pista wui*, but very similar in other morphology.
- Dorsal methyl green stain is present on setigers 2-7 and is absent thereafter, while the dark dorsal stain of *P. wui* continues through most of the thoracic region.
- This staining pattern is very similar to that shown for *Pista cristata*, a north Atlantic species in illustrations provided to SCAMIT by Leslie Harris in 2002 (Rowe distributed CD).
- Lovell has prepared an identification sheet with color images.

References

Chamberlin, R. V. 1919. Pacific coast Polychaeta collected by Alexander Agassiz. Bulletin of the Museum of Comparative Zoology Harvard 63:251-276.

Hilbig, B. 2000. Family Terebellidae Grube 1851. In "Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel, Vol. 7: The Annelida, Part 4: Polychaeta: Flabelligeridae to Sternaspidae (J. A. Blake, B Hilbig, and P. Valentich Scott, Eds.), pp 231-293, Santa Barbara Museum of Natural History, Santa Barbara, California.

Hartman, O. 1959. Catalogue of the Polychaetous Annelids of the World. Allan Hancock Foundation, Occasional Papers 23, 628 pp.

Moore, J. P. 1923. The polychaetous annelids dredged by the U.S. "Albatross" off the coast of southern California in 1904. IV. Spionidae to Sabellariidae. Proceedings of the Academy of Natural Sciences in Philadelphia 75:179-259.

Table 1: SCAMIT Nomenclature for *Pista* spp

Genus	Species	SCAMIT Taxonomic Status	Current SCAMIT Nomenclature	Morphological Form (see Table 2)	Comment (SCAMIT & California records)
<i>Pista</i>	<i>agassizi</i>	valid	same	1	previously <i>P. percyi</i> & <i>P. brevibranchiata</i>
<i>Pista</i>	<i>alata</i>	valid	same	1	Harris S. Calif. shallow & Phillips Newport Bay & Huntington Harbor
<i>Pista</i>	<i>bansei</i>	synonym	<i>P. estevanica</i>		includes former <i>P. sp B</i> of SCAMIT
<i>Pista</i>	<i>brevibranchia</i>	homonym	<i>P. agassizi</i>		Chamberlin's holotype specimen
<i>Pista</i>	<i>brevibranchiata</i>	valid		1	Previously <i>P. percyi</i> & <i>P. alata</i>
<i>Pista</i>	<i>cristata</i>	valid			not reported from Northeastern Pacific
<i>Pista</i>	<i>disjuncta</i>	??			Identity needs clarification
<i>Pista</i>	<i>elongata</i>	valid		2	
<i>Pista</i>	<i>estevanica</i>	valid		1	Previously <i>P. bansei</i> & <i>P. sp B</i>
<i>Pista</i>	<i>fasciata</i>	valid			Not reported by SCAMIT / S. Calif. records misidentified & likely <i>P. wui</i>
<i>Pista</i>	<i>fratella</i>	nomen dubia	indeterminable	1	type dried
<i>Pista</i>	<i>moorei</i>	valid		2	
<i>Pista</i>	<i>pacifica</i>	valid		2	Not reported by SCAMIT for S. Calif.
<i>Pista</i>	<i>percyi</i>	abandon name	<i>P. brevibranchiata</i>		Moore 1923 manuscript established <i>P. brevibranchiata</i>
<i>Pista</i>	<i>wui</i>	valid		1	Previously <i>P. sp C</i> , <i>P. disjuncta</i> , & <i>P. fasciata</i>
<i>Betapista</i>	<i>dekkerae</i>	valid		2	Not reported by SCAMIT for S. Calif.
Recently reported provisional taxa					
<i>Pista</i>	sp 1 fide Harris	valid		1	Requires definitive descriptive documentation for SCAMIT
<i>Pista</i>	sp SF1 fide Norris	valid		1	Taxon of interest outside SCAMIT geographical range
<i>Pista</i>	sp beta fide Lovell	synonym	<i>Pista wui</i>	1	Currently staining variant of <i>P. wui</i> needing additional review

Two morphological forms of *Pista* & *Betapista*

Leslie Harris has examined type specimens for all reported Northeastern Pacific species of *Pista* except *P. agassizi* and *P. disjuncta*, and separates species in the genus into two morphological forms.
 (Note that the paratype of *P. estevanica* is an abdominal fragment).

Form 1 is represented by *Pista cristata* (Muller, 1776) from Norway, the type species for the genus, *Pista* (Harris has images of live specimens of *P. cristata* from near the type locality). Form 2 is represented by *Betapista dekkerae* Banse, 1980. Leslie determined that the holotype of *B. dekkerae* was an aberrant specimen missing the first branchiae and the first lappet on one side. The first branchial scars are visible in the type when examined very carefully. So *Betapista* does have branchiae starting on the second segment (like all other "Pista"). But there are other characters that make *Betapista* distinct from *Pista* (sensu stricto).

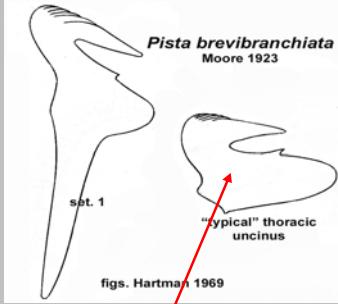
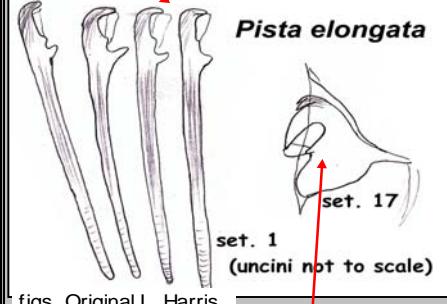
Table 2: Two Primary Morphological Forms of Pista / Betapista		
Tabular Summary of SCAMIT July 2006 & February 2002 Presentations by Leslie Harris		
	FORM 1	FORM 2
REPRESENTATIVE TAXA	<i>Pista</i> spp (sensu stricto) - <i>Pista cristata</i> - <i>Pista agassizi</i> - <i>Pista alata</i> - <i>Pista brevibranchiata</i> - <i>Pista estevanica</i> - <i>Pista wui</i>	<i>Betapista dekkerae</i> - <i>Pista elongata</i> - <i>Pista pacifica</i> - <i>Pista moorei</i>
CHARACTERS		
Branchiae	2 pair	3 pair
Branchial insertion	segment 2	segment 2
Nephromixia (internal morphology from Smith 1994)	3 pair (also reported as nephridial papillae or pores)	> 3 pairs
Nephromixia location (internal morphology from Smith 1994)	segments 2, 5, & 6 [1 pair excretory (ENMX) then 2 post-septum pair reproductive (RNMX)]	2 pair excretory and anterior to septum (located at the posterior margin of segment 4), and up to 11 post-septum pair
Anterior thoracic uncinal dentition and shape	multiple teeth above the large single primary tooth (long shafted on first few setigers usually)  figs. Hartman 1969	crest is smooth or with only vestigial teeth and contiguous with primary tooth (long, heavy shafts on first few setigers)  figs. Original L. Harris
Shape of posterior thoracic uncini	similar to anterior	similar to FORM 1
Size of anterior thoracic uncini	subequal to posterior thoracic	greatly enlarged in first few setigers then decreasing in size
Size of posterior thoracic uncini	subequal to anterior thoracic	much smaller than anterior uncini (similar to FORM 1)
Ventral shields (scutes)	anterior well defined and typical of those on following segments / anterior may be grooved	anterior few crenulated without the well defined border of those on following setigers / in some taxa the poorly delimited shields may continue to the mid thoracic region

Table by Rowe 070226

Most of the information provided in this document was presented by Leslie Harris at the SCAMIT Terebellidae meeting 11July2006 (LACMNH-worm collection room)

Synonymy: *Nereis procera* of authors NEP, not Ehlers 1986 **Examined:** 08 Mar 07
Nereis nr. *procera* of Hyland *et al.*, 1990 **Examined by:** Bill Furlong
Nereis nr. *procera* of Lissner *et al.*, 1986 LACSD
Nereis sp B of Lissner *et al.*, 1986

Literature:

1. Hartman, O., 1968. Atlas of the Errantiate Polychaetous Annelids of California. pp. 1-828
2. Hilbig, B., 1997. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and the Western Santa Barbara Channel. Vol. 4, Chp. 12, pp. 291-316.
3. Johnson, H.P. 1901. The Polychaeta of the Puget Sound region. Proceedings of the Boston Society of Natural History 29(18): 381-437.
4. SCAMIT Newsletter, August, 2002. Vol. 21, No. 4, pgs. 2-5.

Diagnostic Characters:

1. Ventral cirri single throughout
2. Two pairs of small round eyes
3. Conical paragnaths on both rings of proboscis, absent on Areas I and V
4. Notopodia with homogomph falcigers

Discussion:

At a SCAMIT meeting in August, 2002, Leslie Harris reported on her examination of Ehler's type specimen of *Nereis procera* (SCAMIT Newsletter, Vol. 21, No.4), which is from the Gulf of Georgia and was approximately 120mm long and 4mm wide. Leslie noted 8-9 teeth on the jaws and that the paragnaths were tiny, colorless, and present on all eight regions of the prostomium. Soft bottom specimens from the southern California region also have 8-9 teeth on the jaws and the paragnaths are also often small and inconspicuous. Local specimens, however, differ in being much smaller (typically less than one sixth the length of the type) and paragnaths are absent from Area's I and V of the prostomium. Thus, it was recommended by Leslie and agreed upon by present SCAMIT members to erect a *Nereis* sp A designation for specimens previously referred to as *Nereis procera* in the southern California area.

Depth Range: Reported 23m to 305m by LACSD

Habitat and Distribution: Silt and silt mixed with sand from western Canada to southern California.

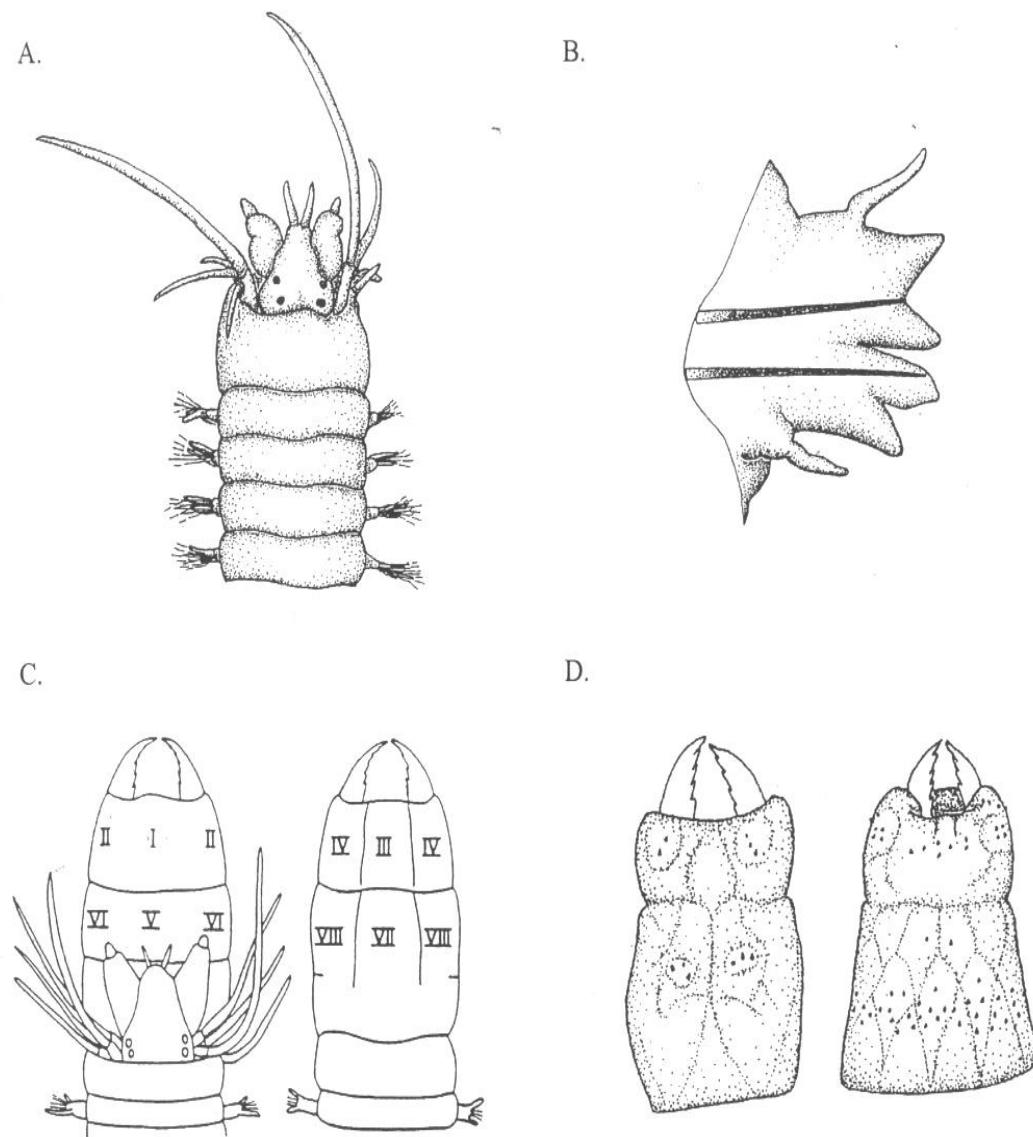


Figure 1. *Nereis* sp A of SCAMIT: A. anterior, dorsal view; B. middle parapodium, anterior view; C. areas of proboscis; D. dorsal and ventral view of proboscis and paragnath pattern (A,B after Johnson, 1901; C,D after Hilbig, 1997).



Figure 2. Ventral view of paragnaths on partially everted proboscis (Photo courtesy of Rick Rowe, CSD).

BALLOT FOR SCAMIT OFFICERS 2007-2008

Vote for one (1) nominee for each office. Please mail or return the completed ballot to Leslie Harris by June 12th 2007. You may return it to the Secretary or other attending officers at the June meeting. The address to mail it to is:

Attn: Leslie Harris
Worm Lab
Los Angeles County Museum of Natural History
900 Exposition Blvd
Los Angeles, CA 90007

President – The president presides at all meetings and represents SCAMIT in external business affairs.

_____ Larry Lovell
_____ Write in: _____

Vice-President – The Vice-President chairs ad hoc committees, supervises the specimen exchange, tabulates election ballots, and fills in for the President as necessary.

_____ Leslie Harris
_____ Write in: _____

Secretary – The Secretary keeps minutes of the meetings, is responsible for the newsletter, and preparation of the ballots.

_____ Megan Lilly
_____ Write in: _____

Treasurer – The Treasurer collects dues, makes disbursements, keeps financial records, and makes an annual statement of the financial status of SCAMIT.

_____ Cheryl Brantley
_____ Write in: _____

2007-2008 SCAMIT Meeting Topics – Please suggest any topics you deem worthy of a SCAMIT meeting.

