Southern California Association of
Marine Invertebrate Taxonomists

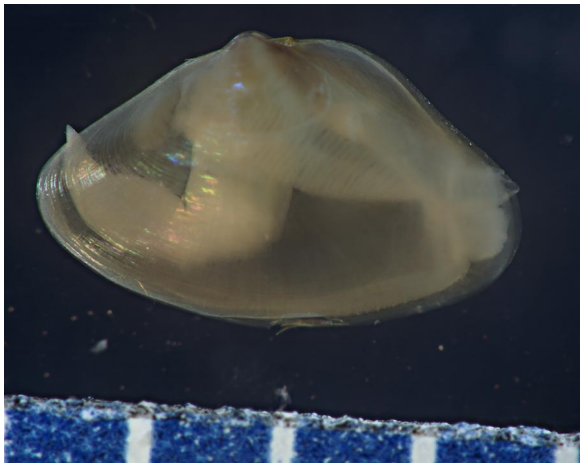
3720 Stephen White Drive
San Pedro, California 90731

March, 2000

SCAMIT Newsletter

Vol. 18, No. 11

SUBJECT:	Pilargid Polychaetes
GUEST SPEAKER:	Dr. Sergio Salazar - Vallejo
DATE:	10 April 2000
TIME:	9:30 a.m. to 3:30 p. m.
LOCATION:	Worm Lab Natural History Museum of Los Angeles County 900 Exposition Blvd.



Bivalvia sp
From near the mouth of San Francisco Bay
Photo by K. Barwick 3/00
Scale marks = 1mm

The April Meeting will take place from 0930 a.m. to 3 p.m. on Monday, 10 April at the Worm Lab of the Natural History Museum of Los Angeles County. It will be a workshop on polychaetes lead by guest investigator Dr. Sergio Salazar-Vallejo.

ELECTIONS

Nominations for the 2000-2001 slate of officers closed on 24 March. Unfortunately, no new candidates presented themselves. Fortunately all the present officers were willing to allow their renomination as incumbents. At this point the election becomes pro forma, but we must continue to pursue the process just as if its outcome were not preordained. In consequence the brief candidate bios are appended, along with a ballot for the current elections. There were no special issues to be voted on this year, so the only item before the membership in this election is filling the officer positions. Please vote despite this. Your participation is more

FUNDS FOR THIS PUBLICATION PROVIDED, IN PART BY
THE ARCO FOUNDATION, CHEVRON, USA, AND TEXACO INC.

important than the outcome. Electronic responses can still not be considered. Only paper ballots will be counted. As in the past, your comments and requests for future areas to be addressed in SCAMIT meetings should be added to the bottom of the ballot in the space provided. If your comments are more extensive please feel free to write on the back of the ballot or add additional sheets. The input would be welcomed.

SCAS MEETINGS

The 2000 meetings of the Southern California Academy of Sciences will be held on the campus of the University of Southern California on 19-20 May. Six symposia are scheduled: Understanding the Urban Influence on Santa Monica Bay, Coastal Habitat Restoration, The Ecology of Kelp Beds in Southern california, Research at Public Aquaria, New and Rare Fish and Invertebrate Species to California during the 1997-98 El Nino, and the Los Angeles River Symposium. Pre-registration is open until 15 April; registering for both days costs $ 50 for professionals ($40 if a member), $25 for 1 day, and $15 for students. Registration at the door or after 15 April will cost each category $10 more. Questions about registration should be addressed to Dr. Dan Guthrie at dguthrie@jsd.claremont.edu. More details are available on the SCAS web site

http://earth.usc.edu/ scas/

A number of SCAMIT members will be presenting, and the selection of symposia for this session is strongly marine biased. Try and attend.

NEW LITERATURE

Pennington et al (1999) report on the development of larvae and juveniles of the local brachiopod *Laqueus californianus*. We only encounter the animal once in a while, when we stray near the shelf edge where it tends to live (as in the SCBPP trawls in 1994). In other areas it has a much broader distribution, from intertidal (British Columbia) to over 800m in the Monterey Submarine Canyon. You usually find many when you encounter any, and this is largely explained by the attractiveness of the adult test as a larval settlement site. Experiments by the authors conclusively demonstrate that larval settlement is largely on existing adults. The larvae also remain competent in the water column for some time (up to 71 days in culture), giving them ample opportunity to locate the scattered patches of adults. The authors intend to explore other facets of *Laqueus* ecology in subsequent papers.

Not all propagule dispersal happens prior to metamorphosis as demonstrated by Hendler et al (1999a). Post-metamorphic juvenile brittle stars were caught in a tethered plankton net on a coral reef. They had evidently metamorphosed to a benthic form from free-swimming larvae, and then reentered the plankton by either active swimming, or by rafting on small algal fragments. As with other seemingly sessile benthic forms, unexpected behavior (such as clams floating suspended from mucous threads), adds to the dispersal potential of the species. Such considerations are often overlooked in modeling species dispersal, and should be quantified and included to refine such assessments.

Even more behavioral complexity in brittle-stars is documented by Hendler et al (1999b) who found juveniles of one species (*Ophiomastix annulosa*) living on another (*Ophiocoma scolopendrina*). As these were usually found in the genital bursae of the host, they can be considered brood parasites. They do not harm the host ophiuroid, but, in addition to protection from intertidal exposure and predators, they may benefit by stealing food from the adult. Juveniles of the host species are also found on the adult (as are juveniles of another species, *Amphipholis squamata*, which occurs locally), but they do not occupy the genital bursae as do the brood parasites. A

second heterospecific association was observed between juvenile *Ophiomastix janualis* and adults of *Ophiomastix flaccida*. In this case the juveniles clasp the aboral disc like little hats. A third association was observed in which juveniles of *Ophiocoma aethiops* occasionally occupied the genital bursae of adults. Normally juveniles on their own are suspected to be fair game for predators. We assume the above behaviors render survival more likely for the juveniles concerned.

While in the final throes of preparation of the west coast bivalve monograph Gene Coan found time to continue his reviews of eastern Pacific bivalve genera and families with treatment of the myoid genus *Sphenia* (Coan 1999). In the process he removed *Sphenia fragilis* from the synonymy of *S. luticola* indicated by Bernard (1983) and currently on the SCAMIT list. Both species occur in the southern California Bight, but can be separated using the criteria listed in the paper by Coan. Even as recently as Coan & Scott (1995) only a single species, *Sphenia luticola*, was listed from the Northeast Pacific. Those of you who (like me) have been treating all local *Sphenia* as *S. luticola* need to reexamine your material and verify that *S. fragilis* is not involved. If you find some please make note of it for the May meeting, where we will discuss changes and additions to the SCAMIT list prior to issuance of Ed. 4.

Being a clam, regardless of species, can be a very hazardous condition - especially right after you settle and metamorphose from a free-swimming larva. Two recent articles address the degree to which postlarval bivalves are consumed by amphipods (Ejdung & Elmgren 1998) or decapods (van der Veer et al 1998). With amphipods (*Monoporeia affinis* and *Pontoporeia femorata* were tested) juvenile clams can attain a size refuge from predation relatively quickly, with *Macoma balthica* spat being safe from *Monoporeia affinis* predation by a size of 1mm. With the shrimps and crabs examined in the second paper, juveniles of *Macoma balthica* and *Mya arenaria* were consumed until at least 2mm, while juvenile *Cerastoderma edule* were still consumed at up to 3.5mm. Following early spring settlement bivalve spat density in the second study dropped by roughly 80% before leveling off through the summer. Nearly all of this mortality could be accounted for by the feeding activities of juvenile brown shrimp *Crangon crangon*. Even so, the density of the bivalve populations was not controlled by crustacean predation pressure according to the authors.

The SCBPP in 1994 and the Bight'98 study in 1998 have been followed in 1999-2000 by the WEMAP project examining very shallow water and estuarine benthic communities in California, Oregon, and Washington. It remains to be seen if the Benthic Response Index (BRI) devised to evaluate degree of disturbance reflected by benthic community composition on the continental shelf (Smith et al 1998) will work for these shallow samples. Other approaches, such as that of Engle & Summers (1999) may prove more useful given the nature of the community. Although their measure was designed for application in northern Gulf of Mexico estuaries, it does not involve species specific information as does the BRI, and should not be geographically specialized. It is a multimetric index utilizing a variety of different data types.

Bays and estuaries, such as those examined in the WEMAP sampling, tend to be depots for terrestrial (usually anthropogenic) contaminants. The recent examination of sediment contamination in San Francisco Bay (Thompson et al 1999) demonstrated again that the patterns of contamination and benthic response are complex. Two sediment toxicity tests were used; bulk sediment assay with amphipods (*Eohaustorius* survival), and elutriate toxicity assay with larval bivalves (*Mytilus* or *Ostrea* normal development). Results of the two types of toxicity tests did not show the same patterns, rather reflecting different aspects of sediment toxicity and

organism response. Many of the 14 sites tested within the Bay system showed toxicity in one or the other test. There was no significant influence of freshwater input into the Bay, either as rainfall or as riverine flow, on the toxicity of sediments.

Not all sediment toxicity is anthropogenic. Bromophenols and other secondary metabolites of benthic infauna have been shown in the past to control settlement of competing larvae, or to keep areas around tubes or burrows free of spacial competitors. The hypothesis that 4-bromophenol exerted this influence by controlling the bacterial flora of the sediments was addressed by Lovell, Steward & Phillips (1999). Their results indicated that this hypothesis was unsupported; there was no significant effect of 4-bromophenol on sediment bacteria.

OLD LITERATURE

Dr. Michel Hendrickx of the Mazatlan Marine Institute has informed SCAMIT that he has copies of several of his large publications available free, and with a very modest shipping and handling cost. These include Hendrickx & Salgado-Barragan 1986, Hendrickx & Estrada Navarette 1996, and Hendrickx 1997. A new publication will also be available in the very near future; Hendrickx 1999. Interested parties should contact him via e-mail at michel@ola.icmyl.unam.mx. Handling is $5.00 per volume + the cost of the shipping itself (varying with number of items desired, and nature of shipment method i.e. express mail, air mail etc.) Dr Hendrickx will be able to tell you how much it will be once you contact him. He can also be reached at michel@mar.icmyl.unam.mx.
All of the volumes are in Spanish, but are very well illustrated, have fine keys, and should be useful to anyone with the courage to attempt their use (Spanish speaking or no).

An old friend has resurfaced. It was with considerable surprise and great gladness that an e-mail message was recently received from Dr. E. L. Bousfield announcing the resumption of publication of the journal Amphipacifica. It had made it through one and 3/4 volumes prior to his having to cease publication due to ill-health. He has weathered that crisis, and has decided to continue with publication where he left off. There were a number of manuscripts in progress at the time publication ceased (Volume 2 No. 3 was released in May of 1997). With the release of the final issue of Volume 2 (expected June or July of 2000) these manuscripts should be addressed. Subscribers to Volume 2 will receive No. 4 without further charge. Others can purchase it for $10 (U.S.) or $12.50 (CAN). Subscription to the 4 issues of Volume III is available for $40 (U.S.) or $50 (CAN) including surface mail delivery. Subscription requests and other correspondence should go to elbousf@magma.ca or Dr. E. L. Bousfield, Managing Editior, 1710-1275 Richmond Rd., Ottawa, ON, Canada K2B 8E3.

MYTILUS REVISITED

In the December 1999 NL the editor provided a brief commentary on the paper by Martel et al (1999) dealing with separation of juvenile mussels. In those comments I stated that they provide data on characters which would allow separation of juvenile *Mytilus trossulus* from *Mytilus galloprovincialis*. Member Dr. Jim Carlton had also read the paper, and reached different conclusions. He sent the following e-mail stating his case, and inviting reassessment on my part (which is provided below). I and other SCAMIT readers owe him a debt of gratitude for his correction. I would encourage other readers to take issue with statements or evaluations set out in the NL, both to correct misstatements, and to express differing opinion.

> "I see your note on p. 5 of the December 1999 SCAMIT newsletter, which reads in part, 'Dr. Jim Carlton opined that there was no morphological basis for separation of the species in the "edulis" group — *M. edulis*, *M. galloprovincialis*, and *M. trossulus*... Martel et al. (1999) disagree...'
>
> If one takes a peek, again, however, at Martel et al. (1999), they made no attempt to distinguish *M. gallo* (MG) from *M. trossulus* (MT), they did not try to do so, and they offer no clear way to do that. They only distinguished lumped MG-MT (which as a species bundle they simply call "bay mussels") from *M. californianus* (MC). The most telling evidence for this is figure 2, where they draw a juvenile *M. californianus*, but the juvenile bay mussel is labeled "*M. trossulus* / *galloprovincialis*" — clearly they were unable to draw these as two different species! While there are differences in the means between MG and MT for some characters, the standard deviations are large and pretty much capture the mean of the other species. On page 162 they put the nail in the coffin, and say, "No attempt was made to distinguish true breeding...individuals within the bay mussel species complex...". I take the point of the paper to be able to tell baby MC from baby MT or MG, whatever one might happen to have in the neighborhood.
> At least, that's the way I read it — what do you think?"

On reexamining the evidence provided by Martel et al I must admit that Dr. Carlton's less sanguine assessment is more accurate. Although two measures (PA ratio and Dorsal Apex ratio, Table 4) were significantly different statistically between *M. trossulus* and *M. galloprovincialis*, the ranges are strongly overlapping. In practice there would be no way to positively separate juveniles of these two species using the measurements which the authors analyzed. One might have a suspicion, based on the nature of the two measurements, but there could be no definitive identification. As the two species would only co-occur in areas where hybridization was possible, and no evaluation of hybrids was attempted, the situation is even less favorable for species level morphological discrimination of the two species.

As Dr. Carlton states in his e-mail, the authors intent was separation of *Mytilus californianus* juveniles from bay mussel species at different points in the *M. californianus* range. The differences they detected between *M. galloprovincialis* and *M. trossulus* were only a byproduct of their investigation, and not sufficient to separate juveniles of the two bay mussel species in areas where they might co-occur. As *M. edulis* is only very rarely present on the West Coast, our main concern has been with separation of the other two members of the edulis or bay mussel group. The only basis for separating these two taxa locally is geographic unless molecular taxonomic data is available for each individual. In areas of range overlap all bets have been, and unfortunately remain, off.

PERSISTENCE

Despite the termination of El Niño conditions some time ago, and reversion to a La Niña cool water condition in the Southern California Bight, a few of the warm water elements just refuse to go away. The target shrimp *Sicyonia penicillata*, for instance, persists in our area. Three specimens were taken by OCSD on 10 January 2000, in their regular trawl sampling [thanks to Christina Thomas & Mike McCarthy for the opportunity to examine these specimens]. Both stations where they occurred were on the 60m isobath, and one of the returned specimens was a mature male. I presume that in some areas reproduction may

still occur, and that the species continues to be locally viable. January is the end of the major spawning period for this species in the Gulf of California (López-Martínez et al 1999).

THE DEEP END, OFF & ON

Towards the end of February your editor finally made his planned trek to the north. As mentioned in the NL last year, the goal of this trip was to save a series of samples from being discarded. Dr. Andrew Carey, Jr., who is retiring after a long and productive career at Oregon State University, was tasked with cleaning out a bio-curation facility prior to his departure. This building held many of the collections made by OSU oceanographic cruises over the years. Much of the material held in species lots was distributed to various institutions (including a large group of specimens from grab and trawl collections to the Natural History Museum of Los Angeles County), but no home could be found for one series of unsorted or partially sorted samples.

The samples were taken with an epibenthic sled (EBS) which samples the upper sediment surface without digging too deep. It is towed for some distance over the bottom before filling, and, in consequence, tends to accumulate both large suites of animals, and rare species. Most of the samples were taken in 1974-75 as part of the thesis work of Dr. John Dickinson, who investigated the taxonomy and ecology of the amphipods of the Cascadia Abyssal Plain (see Dickinson & Carey 1978). They came predominantly from two sites, one near the base of the continental slope, and one removed from the slope; both at depths of around 2800m. At each site a series of EBS tows was made, around 70 in total, not all successful. Those which best served the thesis work were partially sorted (amphipods were removed), but the rest remained unsorted. A few samples were also obtained from the mid to lower portions of the Cascadia Slope at depths between 713 and 1372m. As the mesh on the sampler is 1.0mm, and rewash was done on a 0.42mm screen, many tiny animals were retained including forams. Along with the forams were great gouts of fecal pellets, and some light but coarse glauconitic sands. Maintained in ethanol, they remain in excellent condition following decades of storage.

Gene Ruff (who worked with Carey at OSU) had already selected and removed a portion of these samples, leaving 51 5-gallon buckets of material at risk of being discarded. Additionally there were four one-gallon containers from EBS tows in the Tanner Basin made with the same gear by R. R. Hessler in 1971. I picked up all this material from Dr. Carey, and trucked it down to Los Angeles. Some of the EBS tows yielded a great deal of material - one distributed into eight buckets! I plan to work on them when I can, but it will take many years before they are all sorted. The materials which result will eventually be deposited (with the remainder of my collections) at the Natural History Museum of Los Angeles County, but in the interim will remain with me.

Others in SCAMIT interested in looking beyond their sampling grids for comparative material are welcome to contact me about borrowing material or participating in this particular labor of love (that is...sorting). I will be keeping Dr. Carey informed of what the samples contain, and from time to time will write up particularly notable finds for the SCAMIT NL. Based on examination of seven samples to date, there is little overlap (at least in non-polychaetes) between the fauna contained in these samples and that of even the deepest monitoring stations among SCAMIT organizations (305m). - Don Cadien (CSDLAC)

MINUTES OF THE 13 MARCH MEETING

The meeting was called to order at approximately 9:40 a.m.. Ron Velarde started by passing around an email request he'd received. The European Standards

Organization has set up a task group to develop guidelines on quality assurance methods related to aquatic ecology. A request is being put forth for any information related to the above mentioned area. Anyone interested can respond to Martyn Kelly at Bowburn_Consultancy@compuserve.com.

Ron also let us know that Paul Scott had sent an email with the well received news that his book is at the printers. The Mollusca specialists were over-joyed.

Upcoming meetings were reiterated. The AMS will be holding its conference in conjunction with the WSM this year from July 7-12 at San Francisco State University. There is also a Coastal and Estuarine Risk Assessment Forum from July 20 - 21, 2000 at the Virginia Institute of Marine Science (William & Mary campus). For more information please see the VIMS web site at:

http://www.vims.edu/env/departments/riskchem/events.html.

The officers were then queried as to any issues they had. Secretary Megan Lilly voiced her concern over a recent trend she's seen developing within the last year. Because of the number of taxonomic problems which arose during the B'98 survey, SCAMIT meetings have been being held on a bi-monthly basis for the last year or so (which, as of the writing of this newsletter, has ceased and we are back to the normal once a month schedule). Within the last 4 months a number of meetings have been canceled at the last minute (the Friday afternoon before the Monday meeting) because of a lack of interest on the part of many of the potential attendees (some people were burned out from the bi-monthly schedule). The secretary took issue with this because inevitably some attendees were not receiving the notice of cancellation in advance (it being a last minute decision) and were showing up to meetings which had been canceled. Setting aside time to attend a meeting, only to arrive and find it canceled, must be frustrating to say the least. So, the Secretary would like to put forth a request that in the future a minimum of a week's notice of cancellation be given, if this cannot be done, then the meeting needs to go forward as planned.

Don Cadien reminded those present that it is time to call for nominations for the upcoming SCAMIT officer elections. John Ljubenkov and Don then proceeded to nominate the existing suite of officers. Ron Velarde (president) accepted the nomination as well as Megan Lilly (secretary).

John Ljubenkov told us about a web-site,

http://www.sciplus.com/

where surplus microscopes and related equipment can be found relatively inexpensively. John has already purchased and received a dissecting scope, and is expecting a new compound scope as well. These items are coming from financially strapped institutions in Russia, and are good equipment at very advantageous prices ($595). The dissecting scope came with an integral substage, and a light source to fit it. We will report on the compound scope once John receives it and has a chance to evaluate its optics.

The taxonomy portion of the meeting started with mollusca. We had Dot Norris joining us from the City and County and of San Francisco and she had brought a small, unidentified bivalve from just outside the mouth of SF Bay. It was studied with great fervor, but the members present were not able to identify it. It was felt that it was probably an introduced species and left at Bivalvia sp for the time being (see front page). Megan Lilly had brought a small Eulimidae from ITP Station 2685(1), 7/28/99, 398 ft. Upon examination the animal was identified as *Vitreolina macra*. As well, a *Cyclostremella californica* was identified from ITP regional station 2679, 8/3/99, 40 ft. Tony Phillips (CLAEMD) had

brought a strange looking Tellinid. The shape was more reminiscent of a *Macoma*, but its color pattern and over all gestalt pointed to *Tellina carpenteri*.

A *Turbonilla* from B'98 station 2519, Santa Cruz Island, 7-23-98, 66m, was also brought by Tony. It was compared to many of the City of San Diego's provisional species of *Turbonilla*, but was, in the end, considered distinct. For now it is being called *Turbonilla* sp Hyp 1.

In the afternoon we examined a series of crustacean specimens. Dean Pasko (CSDMWWD) distributed several summary sheets he had assembled concerning problem animals. The first concerned one of our targets for the day; separation of the amphipods *Ampelisca cristata cristata* from *A. cristata microdentata*. There is some difference of opinion among members regarding the retention of *microdentata* as only a subspecific form. Several members feel that the differences warrant full specific recognition. At a recent Bight'98 conflict resolution meeting the question of separating the two had arisen again as a practical matter, with different taxonomists seeing the same specimens differently. Of particular interest was Dean's use of a perceived dichotomy between the two involving either a single or double crest on the last pereonite. Doug Diener (MEC)[unfortunately unable to attend] circulated an e-mail providing data which indicated that this character was not reliable for separation of the two taxa. In the materials Dean provided at the meeting he recognized that the character had become unreliable, based on new material collected from the Pt. Loma area. He modified the information provided by Diener, adding additional characters of the head, gills, and epimeron 2. The result is assembled in an attached table (A).

Dean then moved on to a second *Ampelisca* problem; separation of *A. brevisimulata* from the nearly allied provisional form *A.* cf *brevisimulata*. Although the latter, originally recognized by Carol Paquette (MBC) in the mid 80's, has been a SCAMIT species since 1995, it has not achieved wide recognition. Dean finds both in his sampling area, and felt that the lack of reports from others stemmed from a lack of side-by-side comparison. He prepared another table directly comparing the character states of the two forms with regard to coxa 1, 2nd pleonal epimeron, and 3rd uropod configuration (B). With this aid in hand perhaps more of us will be able to detect *A.* cf *brevisimulata* in our samples. Once data from a wider area is available ecological differences between the two forms may become apparent.

We then visited another ampeliscid genus, *Byblis*, to examine the *B. veleronis* vs. *B. millsi* question. Some agencies report both, some only one. Dean finds both in his area, with a bathymetric separation between the two. He compares characters of the coxae, uropods 1 & 2, and size as well as bathymetric distribution in another distributed table (C).

Ischyrocerus pelagops was very briefly considered. Dean was concerned that its status had not been addressed in the revision of the group that removed several species to a new genus *Neoischyrocerus* (Conlan 1995). Currently it is apparently retained in *Ischyrocerus*, although this status may change with further work on the group. It continues to be a valid species.

We reviewed the methods of separating *Majoxiphalus major* from *Foxiphalus obtusidens*. The former was originally described as a subspecies of the latter, then raised to specific status, and finally made the type of a new genus by Jarrett & Bousfield 1994. Dean had a specimen he thought was *M. major*, and upon review at the meeting this was confirmed. Dean uses primarily the relative position of the plumose setae on the telson to

separate the two species; they are very proximal in *M. major*, and removed from the base of the telson in *F. obtusidens*. Other characters of potential interest are the rostrum, the relative widths of the 4th and 5th articles of P5, the shape and posterior setation of pleonal epimera 2 and 3, the relative width of the second article of the mandibular palp, and a series of others listed by Barnard 1960, Barnard & Barnard 1982, and Jarrett & Bousfield 1994. Of these the easiest to see is the rostrum length, but it takes direct comparison of the two taxa and a little eye training to be able to separate them on only that basis. [This character, by the way, is evident even in fairly small juveniles of *M. major* based on the editor's experience.]

Dean brought a cumacean specimen he was calling *Leucon* sp. H, now known as *Leucon declivis* (Watling & McCann 1997). We examined the specimen and concluded that it was actually a *Leucon magnadentata* Given 1961 based on carapace and uropod details. Dean reached that ID using the earlier key of Cadien (a 1986 SCAMIT meeting handout). Both species are normally found in much deeper water than was Dean's specimen, but both have a few shallower records, and the type of *L. magnadentata* came from only slightly deeper than the animal at hand. Neither species is currently on the SCAMIT list, so this animal represents a nice addition.

Dot Norris (CCSF) brought several interesting species from the Bay area for examination.The first was an ampeliscid from near the mouth of San Francisco Bay which was either *Ampelisca abdita* or the very similar *A. milleri*. The introduced *A. abdita* is the dominant ampeliscid species in the Bay, but the specimen examined turned out to be *A. milleri* based on the criteria used by Chapman (1988) to separate the two. Most persuasive was the shape of the dactyl and relative proportions of articles 4, 5, & 6 on P6.

She brought along a small *Photis* to confirm that it was *P. macinerneyi*, and it was. Dean provided her with a copy of his *Photis* key, which she did not have. She also brought down specimens of *Synidotea* believed to be *S. laevidorsalis*. These were examined by Tim Stebbins (CSDMWWD) who has been working with the group. We quote below from his e-mail on the subject:

> "I looked at your *Synidotea* specimens, mostly just at the larger one for the moment. I believe what you have is *Synidotea consolidata* Stimpson, 1856. This would correspond to *S. bicuspida* in Menzies and Miller's (1972) account of the California *Synidotea*, as well as in the isopod chapter of Light's Manual (Miller, 1975). Rafi and Laubitz (1990) discuss briefly the distribution of these two species, the end point being that *S. consolidata* is the beast ranging into your area, while *S. bicuspida* is now considered restricted to arctic waters. I talked to Rick [Brusca] and he is in agreement with this, thus this is what should be coming out in the new Light's Manual (whenever that is).
> Briefly, your critters do have some body sculpturing, although it's reduced to a few small tubercles or horns on the cephalon and transverse carinae (ridges) on the pereonites. These characters would eliminate the "smooth" bodied *S. laticauda* and *S. harfordi*. *Synidotea laticauda* is also pretty much restricted to estuarine habitats instead of the offshore environs where you found these beasts. A definitive character for *S. consolidata* is the morphology of the appendix masculinum (a.m.) in males: curved near the apex and densely spinulose. Your larger specimen is a male and I could see the "curved" aspect of the a.m. clearly, although I would need to remove it to get

a clear look at any spination, etc. I didn't feel it was necessary since what I could see matched all the illustrations I had perfectly."

Lastly Dot brought out two specimens of an odd little isopod, *Pleurogonium* sp SF 1. This was unlike *P. californiense, P*. sp A, and *P. rubicundum* in totally lacking coxal spination. The animals were large for the genus and rather chalky (dead white - but blue stained). They were unknown to the members present, but Don Cadien suggested that they might be Sars species *P. inerme*, a potential circumboreal form. The literature was not at hand, and further checking was required after the meeting. He promised to send copies of the Sars plates to Dot so she could evaluate the possibility herself. The species was left at *P*. sp SF 1 pending further information. This was the first time the species had been encountered, and no additional specimens were available.

My Life as a Biologist

by Donald J. Reish
Chapter 18: Some Interesting Consulting Contracts

There will be some duplication of information from previous chapters. Disneyland contacted Ken Maxwell and me to investigate the problem they were having with leeches in their waterways. The divers, who enter the water every day to monitor tracks and pipes, would have leeches attached to them whenever they went in the water. They wanted extra hazard pay because of the leeches. Ken and I would go to Disneyland when it was not in operation and look for leeches. We never found any living leeches because they would poison the water just before we came. The director of maintenance claimed that the leeches came from the 1900 drug store on main street (no longer there). They had medicinal leeches on display which the director claimed that they emptied into the water. I found 3 cocoons in a far corner of the river which had developing leeches. I brought them to the lab and raised them by feeding them sludge worms. A person in Maine identified the leech as one that feeds on worms and snails and is not a blood sucker. Once again it proves the importance of correct species identification. The officials at Disneyland were happy!

I do not know how it started but the radiation branch of EPA contacted me to determine if the drums containing low level radioactive wastes had any effect on the marine benthic environment. Thousands of these drums were dumped in the Atlantic and Pacific Oceans in deep water in the 1950s. I went on the first trip in 1976 off Delaware about 125 miles. They brought a drum up from 10,000 feet. I noted serpulid tubes on the surface which I later studied and believe to be a new species (I don t know if I still have the specimens. Maybe my gradual clean up of my stuff will encounter them.) Steve Bay went on the second trip off Delaware; Randy McGlade went off San Francisco [Gulf of the Farallones Deep Water Dumpsite - Ed.] twice and Joe LeMay once. There did not seem to be any effect of the drums on the benthic fauna. Joe collected fish on his trip and preserved the stomachs and intestines. I was able to demonstrate that invertebrates can be identified from intestinal contents; furthermore, I was able to demonstrate that so-called planktonic feeders also feed on benthic animals. EPA published some of my reports in the radiation series.

I was one of three (Herb Ward, editor of SETAC journal was one) asked to review data collected years earlier on the long term effects of oil well production on the ecology of the Gulf of Mexico. For 2 years I went to Houston about every 8 weeks to evaluate the data. None of the original data collected, which showed no effect, had been published. The oil companies who sponsored the original study wanted us to reevaluate the data, draw our own conclusions, and publish our findings. We found no effect, in fact, we found out that more oil enters the Gulf of Mexico each day via the Mississippi River than has been spilled in 30-40 years of

drilling. Only recently have we been focusing on the effect of storm water run off on the environment. Our reevaluation was published in the Rice University Monograph Series.

One day Herb Ward called me and asked for me to come to the Kennedy Space Center to advise them on the effect of space shuttle take-offs on the marine environment. NASA had not considered that cooling water from the lift-off flows into the estuary adjacent to the pad. I trained their benthic staff with the help of Tony Phillips and Tom Gerlinger. There was some effect but this did not stop NASA.

I became associated with Atlantic Scientific (no longer in existence, the owner died many years ago). Russ Bellmer had worked for them also. He specialized in the smaller contracts. Navy homeporting was one area and I did work in LA-LB Harbors, San Francisco Bay, and Newport, Rhode Island (I borrowed a bottom sampler from Wayne Davis). He was on the short list, unsuccessfully, to do work in Israel and Fiji.

Marine Borers have been an area which has been a consulting field for me from the beginning to recent times. I had already written about monitoring the logs stored in the West Basin of LA Harbor which led to my finding and culturing Neanthes. I advised Southern California Edison Company about Teredo infested pilings. They wanted to use them in the construction of the Redondo Beach electrical generating station. We thought (Denis Fox and I) it was not wise. There was an explosion of the intact pipe (4 ft in diameter) for Standard Oil in El Segundo. They called me in to examine the pipe (I got the job through a father in my son's Indian Guide Troup!). I crawled in the pipe a ways and found the inside of the pipe to be riddled by housands of pholads of the same age. There apparently had been a big reproductive bloom and the arvae settled on the inside of the pipe and eventually burrowed through the wall causing the explosion. I suggested that they abandon the use of the pipe. Unfortunately, as is often the case, I never learned what finally was decided. Rick Ware called me a couple of years ago. Huntington Harbor had a wood boring problem. It was potentially threatening their walkways.

I do not remember how many LA-LB Harbor consulting jobs I have had. There were those through Dorothy Soule and Harbor Projects which I discussed earlier. I had several through Atlantis Scientific, ecology of the Navy Base through Tom McDonnell and Brown & Caldwell, ecology of the harbors based on 50 years of study and observations. This came through Karen Green and MEC Analytical.

Over the years, my former students have been good to me via consulting jobs. Included in the list is Jack Anderson, Tom Gerlinger, Rick Ware, Tom McDonnell, Karen Green. Needless to say, I wish to thank them.

[Next: Chapter 19 - The Graduate Students]

CANDIDATE BIOGRAPHIES

PRESIDENT

Ron Velarde

Ron is the current President of SCAMIT and a past Vice-President; he has been a Marine Biologist with the City of San Diego since 1983 and currently is the supervisor of Benthic Taxonomy for the Ocean Monitoring Program. His taxonomic interests include most groups, especially polychaetes and nudibranch mollusks. He earned his B.S. degree in Marine Biology from California State University, Long Beach, in 1976, and did post-graduate research on the systematics and ecology of autolytid polychaetes.

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 to 1993, worked at the Santa Barbara Museum of Natural History where the taxonomy of marine mollusks was studied under Dr. Eric Hochberg, Paul Scott, and Hank Chaney. Currently working as a marine biologist for the City of San Diego's Ocean Monitoring Program. Specialities include echinoderms and mollusks, with an emphasis on cephalopods.

TREASURER

Ann Dalkey

Ann is presently the Treasurer for SCAMIT and has held this position since SCAMIT was founded. Ann is a member of the water biology staff at the Hyperion Treatment Plant where she specializes in the identification of polychaetes and amphipod crustaceans. Prior to working at Hyperion, Ann was a member of the laboratory staff at the County Sanitation Districts of Orange County. She worked there for nearly 10 years, reaching a position of senior laboratory and research analyst. She received her B.S. from California State University Long Beach in Marine Biology in 1974 and her M.S. from the same university in 1982. Her thesis research pertained to polychaete bioassay.

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Table A. Morphological characters which may be used to differentiate *Ampelisca cristata cristata* and *A. cristata microdentata.* The top three characters (in bold) appear to be the most reliable and easily distinguished characters. A more detailed review of both species is required to confirm the reliability of the secondary characters.

Character	***Ampelisca cristata cristata***	***Ampelisca cristata microdentata***
Epimeron 3, postero-ventral corner	large broad tooth	very small tooth
Epimeron 2, postero-ventral corner	acutely produced	quadrate to rounded
Head	produced antero-distally into small "dome" (e.g., similar to A. careyi, but smaller)	unproduced antero-distally
Urosomal crest	rounded on the ends, middle portion horizontal	less rounded on ends, posterior portion higher than anterior
Pereropod 7, basis	squarish on bottom	more rounded on bottom
Gills	narrowed distally and relatively small (see J.J. Dickinson, 1982, Fig 20, A. brevisimulata or A. hessleri)	cylindrical (i.e., not narrowed distally) and relatively large (see J.J. Dickinson, 1982, Fig 20, A. cristata)

Compiled by Doug Deiner (MEC Analytical) and Dean Pasko (CSDMWWD).

Table B. The following characters may be used to differentiate between *Ampelisca brevisimulata* and *Ampelisca* cf *brevisimulata*. (Characteristics of the first coxa and third uropod were later found to be unreliable.)

Characters	***Ampelisca brevisimulata***	***Ampelisca cf brevisimulata***
coxae 1	postero-ventral tooth strong (see below)	postero-ventral tooth short
Pereopod 5	posterior margin of basis with 4-6 short, stout spines	posterior margin of basis with few setae (spines absent)
Pleon 2	postero-ventral margin with acute tooth	postero-ventral margin rounded
Uropod 3**	long setae, equally dense along dorsal and ventral margins	long setae dense dorsally, but sparse or absent ventrally

Table C. Characters which may be used to differentiate between *Byblis veleronis* and *B. mills*i.

Characters	***Byblis veleronis***	***Byblis millsi***
Coxae 1-3 ventral margin	strongly oblique	obliquely rounded
Uropod 1 outer ramus	w/ many lateral setae	w/ few, small lateral spines
Uropod 2 length	subequal to uropod 1	shorter than uropod 1
Overall size	larger species	smaller species
	(10 - 14 mm)	(8 - 10 mm)
Depth distribution	deeper 100+ m	shallower 40 - 100 m