Southern California Association of
Marine Invertebrate Taxonomists

3720 Stephen White Drive
San Pedro, California 90731

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SCAMIT Newsletter

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SUBJECT:	B'98 Non-polychaete problem taxa
GUEST SPEAKER:	none
DATE:	November 15, 1999
TIME:	9:30 a.m. to 3:30 p.m.
LOCATION:	City of San Diego Marine Biology Lab 4918 N. Harbor Dr. # 201 San Diego, CA 92106

Chaetoderma mavinelli
CSD A10(1), 1/12/93, 154 ft
Photo by K. Barwick 8/97

The first of the November meetings will take place at the San Diego lab on Monday, the 15th. It will be devoted to Crustacea, and probably finish our series of meetings on the problem non-polychaete taxa taken in the Bight'98 benthic program. The second meeting, dealing with polychaete taxa, will take place in the Worm Lab of the Natural History Museum of Los Angeles County on Monday the 29th.

LAST ONE OF THE MILLENNIUM

With January 1 rapidly approaching, it is time to schedule our year-end events. Among those is the 1999 SCAMIT Christmas Party. Our millennium-ending gathering will be held once again in the Cabrillo Marine Aquarium. As in the past we will have the facilities to ourselves, a delightful experience, and one to be treasured. Attendees should plan on bringing some dish (it is, after all, a pot-luck), and if past parties are any guide, a feast should result. SCAMIT will provide a main dish of either turkey or ham, and will provide beverages.

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Those with a taste for a particular beverage can also bring that for their own consumption. Contact Vice-President Leslie Harris (<**lhharris@bcf.usc.edu>)** to coordinate dishes; although chili-mac is very tasty, 20 different editions is not a good thing. This is a Members Only event [non-member www readers - sorry], but family and a limited number of guests are welcome.

We will try to arrange for Santa to be in attendance for the kids. This has usually been the case in the past. The combination of season, location, occasion, and congenial friends should once again guarantee a memorable experience. If Saturday, the 11th of December, is an option for you, please plan to attend. Let Leslie know how many will be in your party, and how many kids are involved. Festivities will start at 6 p.m. and continue till the museum staffer who will be assisting us says it is time to close the doors. As in past years arrangements will be made to have the Gift Shop open for our perusal and topical Christmas shopping. Bring a list and find some unique items for friends and family. This is our last party before 2000, so let's all get together for a big one. Hope you can make it!

FIRST ONE OF THE NEXT

SCUM, Southern California United Malacologists, will be holding their 4th Annual Meeting on 15 January 2000 at the IGPP Building at Scripps Institution of Oceanography in La Jolla. With the flurry of year-end activities this year we need to mark our calendars early so that we won't forget to attend this get-together. It's a great opportunity to meet and mingle with others interested in and studying mollusks in our area. Attend if you can, you'll enjoy yourself and make new contacts. Larry Lovell (**llovell@ucsd.edu**) can provide more information. He will be assisting in his capacity as Curator of the SIO Invertebrate Collections.

NEW LITERATURE

Further evidence of the relationship of the Porifera to other metazoan phyla was provided by Watkins & Beckenbach (1999) using a 2550 base pair sequence from the mitochondrial genome. They found a surprising level of correspondence between the genome of the sequenced sponge, *Tetilla* sp (*T. spinosa/ villosa*) and that of *Metridium senile*. This would seem to make the positioning of the Porifera in a separate and distinct subkingdom as recommended by Willmer (1990) inadvisable.

Hox genes provide evidence to help resolve some of the earliest divergences of the major phyla. As reported by de Rosa et al (1999), their recent sequencing of Hox genes from a priapulid and a brachiopod lend support to the tripartite division of the Bilateria into Deuterostomia, Ecdysiozoa, and Lophotrochozoa. Hox complement seems well suited to recording this high level divergence, which is believed to have taken place prior to the formation of the major "crown" phyla before or at the beginning of the Cambrian. The Hox data match the phylum positioning of Halanych et al (1995), based on 18S ribosomal DNA analyses, and place the Brachiopoda firmly among the Lophotrochozoa, and not in the more traditional deuterostome position.

Phylogeny within the holothurians was investigated by Kerr & Kim (1999). Their results, based both on molecular data and on morphological evaluation, suggest that the current organization within the class is incorrect. The authors do not present an explicit hierarchy differing from that currently accepted, but do present the data which causes them to think that arrangement faulty. Their reticence is based on a degree of incongruence between the molecular and morphological data-sets. Hopefully the discrepancies can be resolved, and a clear and more correct hierarchy subsequently proposed either by these or other authors . They also consider the

evolution of larval forms within the group, and suggest that the auricularia larva has evolved more than once. The symmetry of the title (bi-penta-bi-decaradial) is actually the evolutionary "track" taken by one group, the Rhopalodinidae. These animals have a decaradial symmetry derived from a biradial precursor, which in turn was derived from the typical pentaradial symmetry of the phylum. The phylum symmetry was derived from a bilateral base. This pathway yields a symmetry history of biradial, pentaradial, biradial, and lastly decaradial for this highly modified holothurian group.

On a smaller scale Heupel and Bennett (1999) discuss the association of the praniza larvae of gnathiid isopods with sharks. Although the adults of these isopods are free-living in the benthos, the larvae are fish parasites. The individual parasites could be found at a variety of locations on the host (in this case the epaulette shark, *Hemiscyllium ocellatum*), but most were found attached to the gill filaments. It is not currently known if any of our local *Gnathia* species are associated with particular fish hosts, or which hosts are involved.

In recent years the impacts of trawling activities, particularly those of the large commercial trawling operations, have been increasingly recognized. With trawl sampling a standard part of NPDES monitoring for larger agencies, one must also wonder about the effects of the trawling associated with monitoring studies. While Prena et al (1999) used a large gear rather than the smaller otter trawl used locally, their experimental data can also shed light on our situation. They did report impacts of trawling on the epifauna. Thick shelled mollusks were the least damaged of the considered taxa, with crustaceans sustaining intermediate levels of damage, and relatively exposed and slow moving echinoderms the most affected. Biomass within experimentally trawled areas was about 25% less than that in reference areas upon re-trawl.

Samples taken in Bight '98 from around the northern Channel Islands were frequently found to consist primarily of biogenic sediments. These bottoms have, in addition to some fine particles, large amounts of bryozoan debris, foraminiferal tests, barnacle plate fragments, mollusk shell fragments, echinoderm spine and test fragments, and other calcareous constituents. These bottoms are in many respects analogous to coral/coralline algal sediments in more tropical areas. Santa-Isabel et al (1998) report on the polychaetes of such a biogenic sand bottom off Brazil, and provide data with which Bight'98 biogenic sand samples can be compared.

Ballast water transport of NIS (non-indigenous species) between widely separated areas in different parts of the world ocean is now well documented. After introduction into a new potential range, however, a successful invader needs to expand it's initial beachhead. Lavoie et al (1999) discuss this aspect of species introductions, emphasizing the role that ballast water continues to play in dispersal of introduced species along a continental coast-line.

While becoming established, an invading species can manifest impacts on existing populations as it elbows its way into the local ecosystem. Crooks and Khim (1999) experimentally investigate the nature of the impact of the introduced mytilid clam *Musculista senhousia* on the community it has invaded. Since *Musculista* is a nest building clam living in aggregations, it can have a profound effect on associated organisms just in it's physical habitat modification. It also has the potential of biologically modifying the habitat by its activities of respiration, filtration, particle fixation (as mucous bound fecal strings), and larval predation. By using artificial mats simulating the physical disturbance of a *Musculista* surface nest aggregation, the authors teased out the physical

effect from the combined physical and biological effects. They found that the physical effect was consistently larger that the biological effects.

Reise et al (1999) report on the status of NIS along the North Sea coasts. Invasions seemed to peak in the 1970's, and over 80 species are believed to have been introduced. NIS now form between 6 and 20% of the fauna, depending on habitat (the numbers higher in estuaries and brackish environments). The authors data shows that in most cases the indigenous community could accommodate the invaders, suffering little as a result. They caution, however, that steps should be taken to reduce the number of new invaders, as each has the potential for serious disruption of the local biota.

Armonies and Reise (1999) focus on a single species that fits the general trend noted in the last paper, the establishment of a NIS without serious damage or displacement of the existing community. In this case the clam *Ensis americanus*, introduced from the western Atlantic, has settled in to a coarse sand habitat not completely exploited previously. The under-exploited niche they occupy is that of subtidal/intertidal sands subjected to strong currents. Even though there is little evidence to suggest negative effects at present, the situation must be monitored. The authors note that the feeding activity of the new immigrants fixes fine particulates from the overlying water in the form of fecal material. While most of this is exported from the immediate vicinity of its production, in areas of high clam density there is a tendency for some to become incorporated in local sediments. This is gradually changing the grain size and organic content of the bottom, perhaps to the ultimate detriment of the indigenous community.

27 SEPTEMBER MEETING

The meeting was held in the worm lab of the LA Natural History Museum. Attending were Tom Parker, Ron Velarde, Larry Lovell, Tony Phillips, Cheryl Brantley, Rick Rowe, Leslie Harris (off and on since she was setting up her computer data base of invertebrate images), and Dot Norris. Before the meeting Leslie extended an offer to the members from the San Francisco Laboratory who attend meetings in Los Angeles in future. If they fly into Burbank, she will pick them up before the meeting and if they need a place to stay, she has offered accommodation at her home in Pasadena. If you want to make such an arrangement contact her at <lhharris@bcf.usc.edu>.

The business portion of the meeting included a circulation of the treasurer's report, a discussion of the status of the Bight project, new publications including a new species of *Eunoe* from Russia (Rzhavsky & Shabad 1999), and the scheduling of future meetings. The title page of the *Eunoe* paper can be viewed at http://www.fortunecity.com/marina/customhouse/60/rzsh99_17.gif).

Other announcements included Larry Lovell's discovery of a plastics firm (MGM plastics in San Marcos, 760-744-8909) which will make sorting trays for $16/tray. The bottom of the tray is scored into a grid of 1 cm squares and looks well crafted.

The conversation turned to the problem Bight animals, but before the discussion got too involved we asked Larry to look at some problem *Pholoe* from San Francisco collections (they look like *P. minuta* but have a facial tubercle). Larry took a number of specimens of this form for examination and will render his opinion at a future meeting. A question was also raised about *Eumida* sp. B (whether it is actually *E. longicornuta*). The members present agreed that it is indeed *E. longicornuta*. Larry said that we should be cautious of our *Lumbrineris luti* identifications (he suspects that some may be *Scoletoma tetaura)* and one character we should check is which setiger the hooks start on. It was also agreed that the genus for the species *luti* should be *Scoletoma*.

The discussion of Bight animals turned up a new *Chone* from Sta. 2330 off Ventura. It has a staining pattern similar to *C. albocincta* but no staining in the abdomen, and a relatively large dorsal separation of the collar.

Ron introduced a *Pherusa* with 'spindley spines' and a *Piromus* from San Diego and Mission Bay. Leslie didn't know the *Pherusa* and the *Piromus* she thought was probably *P. capillata*.

Other specimens from Mission Bay included an acrocirrid, a large *Cossura* sp., a *Neanthes* (?*acuminata*) and a *Hemipodus* sp. General observation from Ron was that Mission Bay stations were extremely variable in their polychaete communities. Rick will put out a voucher sheet for the new *Hemipodus*. Ron also introduced a *Eulalia* sp (small with distinct ciliated bands starting on the 13th segment).

Then someone brought out a cirratulid (they couldn't be avoided any longer) and all semblance of order was shot. *Chaetozone setosa* specimens were agreed to represent a complex of species, but with the confusion in the literature (Blake's name was used in vain) and absence of type specimens (again his name was used), they decided to leave all specimens fitting the general description as *Chaetozone setosa*. These are defined as all *Chaetozone* without a separation between cinctures in the posterior segments.

Tony introduced some *Chaetozone spinosa*? - characters included large extended head spines starting on setiger 35. There was some discussion that these specimens may be *C.* sp. 1. Other *Chaetozone* were *C.* sp. SD3 - (a harbor species with a defined staining pattern, dark setae, slight inflation at about setiger 20, long tapering prostomium and a dorsal ridge and small eyes, spines start at about setiger 40, the 3rd setiger separated from the 2nd at 1/2 the length of the separation between the 1st and 2nd) and *C. senticosa* (even staining pattern on the lateral sides of the peristomium and has few spines).

The *Aphelochaeta/Monticellina* discussion uncovered controversy as to what is meant by"fimbriated" vs. "serrated" neurosetae. Both are visually similar at magnification 40X , but are the key characteristics for defining the genera. Distinction of the two genera on the basis of variable interpretation of these setal characters, often within the work of a single author, renders their use problematic. This is a central difficulty within this group, and SCAMIT needs to address it before any meaningful consensus on the definition of local cirratulid taxa can be obtained. This will come up with a vengeance during the B'98 QC sample exchange. Until it is resolved, the likelihood of having identical species in *Aphelochaeta* and *Monticellina* separated only by the interpretation of the marginal structure of the neurosetae is high. Such a separation/ duplication is unlikely to reflect reality. The presumption, in the case of such species pairs, is that definition of the setal character is suspect, and must be closely reconsidered. Rick suggested an easier character would be the relative length of the neurosetae to the notosetae (much shorter and sickle shaped in *Monticellina*, mostly). This, and other characters less problematic than the "fimbriated/serrated setae" need to be sought. The problems in cirratulids will not be resolvable until a character suite that can be more objectively used is developed.

Some problems with the staining pattern of *Aphelochaeta petersoni* were discussed. Rick's description and Blake's MMS description do not match and both types are being observed in the samples. Consensus was that both types would be called *A. petersoni*. *Aphelochaeta ?multifilis* 'fimbriated' neurosetae were observed under the compound scope. At 40x these setae resemble the serrated setae of a

Monticellina. Rick again suggested taking into account the relative size of the neurosetae compared to the notosetae and neurosetae's general shape in the determination of genera.

Monticellina sp SD 6 was suggested to be *M. serratiseta*. The main difference was determined to be that *M. serratiseta* had wide ventral grooves and *M.* sp. SD 6 had deep grooves. *Monticellina* sp 1 from Lovell and Phillips was the same as *M.* sp. SD 4. Tony introduced a *M. cryptica* with a stain variation similar to *Aphelochaeta* sp SD2.

The last worms discussed were a nephtyid with large dorsal lamellae and a *Plakosyllis* sp LA 1 from Catalina Island brought by MBC lab. Characters included a flat body, and dorsal globular cirri; it was close to *Eurysyllis spicum*. Larry will bring a copy of the *E. spicum* voucher sheet for the next meeting.

Leslie had a good suggestion of using o-ring sealed plastic micro-centrifuge tubes with screw caps for transporting small preserved specimens. These can be ordered from VWR and most other scientific supply houses. She gave everyone a tube to check out. The tubes are polyethylene and can be used with either formalin solutions or with alcohol solutions. She also informed us of, and circulated, a special supplemental issue to Volume 42 of the Israel Journal of Zoology (1999) which deals with the ecology and taxonomy of lancelets. Although the status of our only local species, *Branchiostoma californiense* is not changed in these pages, the authorship of the taxon is corrected from J. G. Cooper 1893 to (Andrews 1893)(this correction will be made in Edition 4 of the SCAMIT list).

18 OCTOBER MEETING

The meeting started off with Ron Velarde discussing the 13 October meeting at SCCWRP for QC and synoptic review of B'98 trawl data. Ron and Don Cadien (who also attended) were surprised at the number of errors made in everything from procedures to identifications. Even so the data was much cleaner and more uniform than in the SCBPP in 1994. The data for the invertebrates was cleaned up by the group, every agency was also given a copy of the original data set prior to "cleaning", so the initial data-set could be reconstructed if the changes were later found to be unwarranted. Larry Cooper, SCCWRP data manager for the project, is also keeping a paper trail log of all modifications to the submitted data.

Changes implemented at the meeting were: 1) those which resulted from inclusion of taxa from non-target communities (benthic infaunal and holopelagic taxa), 2) taxa judged too small to meet the minimum size criterion for data inclusion, 3) uncorrected field ID's for which FID or voucher specimens had been examined - and new IDs generated, or 4) detected field or data entry errors. For instance, one database record of 185 Ascidiacea turned out, based on examination of the field sheets, to be a pull-down list data entry error, where Ascidiacea was grabbed instead of *Allocentrotus fragilis*. A set of secondary analytical data-set changes proposed by Dave Montagne and Don Cadien was circulated to the participants, but not acted upon. Changes of this second type would not be made to the base data-set, but only to the analytic data-set derived from it. These recommendations, if accepted by the analysts, would only be acted on later in the process. Fish data were also addressed at the same meeting.

Ron then voiced his opinion/desire that most people should soon be finishing up their B'98 samples and the Re-ID process should begin fairly soon. A few of the QC exchange samples have already been distributed, but most are still awaiting action.

John Ljubenkov proudly passed around a book he recently purchased off the web. It was British Sea Anemones and Corals by P.H. Gosse, 1860. The book was quite impressive with beautiful hand-painted color plates all

throughout its pages. John maintains that this work, although nearly 140 years old, remains one of the best and most thorough examinations of a fauna in this group.

He also passed around an interesting series of publications by Ernest Libby entitled “Internal Structure of Sea Shells”, which contained x-ray photos of many of the more popular and beautiful shells in three folios. If you’ve never seen the results of an x-ray photo of a shell, you should see this publication. Internal structures are characteristic for various groups, and emphasize the geometric nature of gastropod coiling.

Hydroids were the animals to start the day. The first problem animals were small individuals in the family Corymorphidae from station 2229 in San Diego Bay at a depth of 11.5 m. The animals threw us all for a loop as they had capitate/moniliform oral tentacles but long, thin villiform aboral tentacles. No evidence of hydromedusae or budding of any kind was evident and neither were growth buds. It was decided to call the animal Corymorphidae sp SD 1 for the time being. As it turns out Dean Pasko also had a specimen of this same animal that he’d brought to the meeting. It was from station 2227, also in San Diego Bay, at a depth of 8.8 m.

John Ljubenkov then brought forth a new hydroid, *Euphysa* sp C, that he’d found in samples from Willapa Bay Washington and Newport, Oregon (Yaquina Bay). Normally, in this area, one sees *Euphysa ruthii*. *Euphysa* sp C differs from *E. ruthii* in a number of ways. For one the stem in sp C is not nearly as long as that found on *ruthii*. Secondly, from what he’s seen at this point, *E.* sp C seems to have numerous individuals sharing a common perisarc, while *E. ruthii* is solitary. He needs to see more of these animals to further clarify the characters which separate them from *E. ruthii*. Both species seem to reproduce asexually with frustules, ball like bodies which form at the base of the polyp in *E.* sp C, and at the base of the stem in *E. ruthii*. These develop into buds which form new polyps.

Next up was a rather bizarre situation. A polychaete, *Poecilochaetus johnsoni* had small hydroids attached to its body wall between consecutive parapods. The hydroids were discovered anterior to setiger 14, where the gills for this worm would start, so they were not being confused with such structures. The hydroids were so tiny as to discourage any attempt at definitive ID. The question remained as to whether these animals were actually parasitizing the polychaete or were acting as commensals and just “going along for the ride”. For those of you interested in parasite/host or commensal/host interactions, this would be an interesting one to study.

John Ljubenkov then showed an *in situ* slide of the anemone *Bunodeopsis*. The animal is quite distinctive and shouldn’t be difficult to recognize. There are no tentacles on the oral face itself which is almost volcano-like with the mouth being the “rim”. The tentacles are typically curled and covered with white spots which upon closer examination are nematocysts. These animals are found in bays and estuaries living on or near eel grass beds. They like long, stringy substrate upon which to attach themselves and could also be found on frayed lines, etc. The stings from their nematocysts are not powerful enough to cause great agony, but if one stays in the water with them long enough a numbness around the face or potentially other exposed areas can be experienced.

Anthozoa sp Hyp1 brought by Tony Phillips (Hyperion) was the next mystery beast. The specimens were found in 66 m of water at Santa Cruz Island. After some examination it was suggested that they could possibly be *Zaolutus actius*. They had the characteristic grey/purple pigment spot in the tentacles and the columns were appropriately wrinkled, and

about the right proportions to be *Zaolutus*. Tony took them back to the lab for further work up and will either confirm or refute this ID.

With cnidarians completed (for the time being) nemerteans were next on the list. Megan Lilly (CSDMWWD) brought forth a small nemertean that looked very similar to *Carinoma mutablis* with the exception that it was a creamy fleshy-pink color instead of the typical white. However, those present assured her that even with this color difference it was still *C. mutablis*. She then brought forth three very thin, long, white, non-descript looking nemerteans which upon clearing revealed one pair of small red eyes. A distinctive brown/ grey area existed in all three just behind the eyes. It was confirmed that these animals were *Cryptonemertes actinophila*. The second pair of eyes did indeed exist, but needed to be viewed under a compound scope. The brown/ grey area is the "brain" and is quite distinctive. Carol Paquette brought out some specimens that seemed to be *Paranemertes californica*, but were not typical of the species. After examining the animals and discussing the variability of the taxon, it was the consensus of those present that her specimens were within the range of variation normally seen in *P. californica*.

The afternoon started off with Mollusca. The first question was that of *Solen rostiformis* vs *Solen sicarius*. Megan Lilly had been examining some of the *Solen* from the bay (Mission and San Diego) samples and was wondering if they were potentially different from the off-shore *Solen* that the City of San Diego identifies as *Solen rostiformis*. This is the species we used to call *S. rosaceus* locally, but which was first put forward as a separate taxon, then identified as a senior synonym by Coan and Scott. Some bay specimens were examined and Don Cadien, John Ljubenkov and Tony Phillips all agreed that they were *Solen sicarius* based on the shape of the shell. After some discussion, however, it was revealed that these agencies/people only see *Solen sicarius* in their samples, whereas the City of San Diego had only identified *rostiformis* up to this point. As the bay animals didn't differ greatly from the off-shore specimens, it remains to be seen if we are dealing with both species, or only one identified in two different ways. This question will be answered during the B'98 QC as, if we have different assumptions or ID protocols between agencies, it should be apparent during the specimen exchange.

Next, some small *Asthenothaerus* were examined. It was originally assumed they were *Asthenothaerus diegensis*, but the animals were from off Orange County in 40 m of water. They will need to be examined further before a species ID can be assigned. They bore a remarkable resemblance to *Periploma discus* juveniles, but lacked an external ligament. A small "*Macoma* - like" clam roused some excitement. No one present seemed able to identify it to species and there was even some question initially as to its genus. It was suggested to be not a *Macoma*, but a *Cumingia*. This was doubted because the shell lacked the concentric sculpture of that genus, which is evident even in juveniles. It was opened and confirmed to be *Macoma* but was left at genus as there was only one juvenile specimen, and there were several possible species to which it might belong.

Don Cadien then did a "show and tell" with his recently encountered shell-less cephalaspid slug *Runcina macfarlandi*, found among filamentous red algae from a shallow station in the San Gabriel river tidal prism. The animal is small and offers few characters. There are no head appendages, the mouth is obscure, eyes are buried and only visible in the groove which separates the back from the foot. At the posterior end of the animal the centrally placed anus is flanked by two paddle shaped gill lamellae. These are smooth plates without secondary lamellae. The animal is a dark maroon in life, but fades to a dull tan in

preservation. A second species of runcinid, *Runcinida* sp., has been taken in intertidal and subtidal coralline algal scrapings from San Clemente Island. It can easily be differentiated from *R. macfarlandi* by the nature of the gills. In *Runcinida* there are five gills which arch over the anus. Each has both a primary lamellus and secondary lamellae. The animals are otherwise similar in size and general appearance.

A different species of small aeolid, *Cuthona* sp A, was found at the same station. It is probably introduced, perhaps from Japan (Don will continue to try and tract it down). This small animal was characterized by conservative (remaining after preservation) dark pigment patches in the ceratal cores, and on the sides of the body, which do not match any of the species in the genus reported locally. It also displays the rounded head, thin finger-like anterior foot corners, and long simple rhinophores usually seen in these animals. The radula was unlike that of any other local *Cuthona* as well, having accessory spikes along the lateral edge of the tooth just above the base (one on each side). The radular formula is 0-1-0, as it should be for a *Cuthona*, and each tooth has 5-7 lateral denticles(depending on position in the ribbon), and a pair of smaller accessory denticles flanking the central cusp, which is slightly shorter than the laterals. Ron thought that it had also been seen in San Diego Bay, but would have to check.

The pending, heavy problem of the afternoon finally surfaced when it could no longer be avoided - *Mytilus*. In the past we have been able to avoid this issue since mussels of this genus did not occur in our benthic samples from offshore. When B'98 samples from within harbors were processed however, we were confronted with specimens forcing us to address the question of mussel speciation. John Ljubenkov started with a review of the three species that could potentially be found locally, *M. trossulus, M. galloprovincialis, M. californianus* and briefly covered the morphological differences he thought could be used to separate them. *Mytilus californianus* can be separated from the other two based on it's surface ribbing. John and Don Cadien had previous examined a series of small specimens from offshore platform legs, and thought they had a method of separating them into two discrete taxa. However, John found in examining another fraction of the same sample that as the animals got larger the character lines between presumptive *M. trossulus* and *M. galloprovincialis* started to blur. He had brought a large size range of animals collected from the legs of an oil platform off Santa Barbara, CA., and although some animals looked somewhat different it would have been difficult to separate them reliably and consistently. We are not the first group to stumble across this problem and did not actually come up with any definitive answers or solutions at this meeting. The problem was laid before us as food for thought and will re-surface at another meeting, perhaps one devoted entirely to that subject.

At this point it was late in the afternoon and attention spans were drifting. Unfortunately, crustaceans had not been covered and there is plenty of material in that phyla that needs to be addressed, therefore it was decided that the next non-polychaete meeting will be devoted to crustaceans. The meeting is scheduled for November 15 and will be at the City of San Diego.

WWW NEWS

The SCAMIT web-site is cruising along nicely, thank you. After our remodeling earlier this year we have settled in to the new look and feel of our site with little ado. Fortunately, others have noticed the improvements, and one appreciative visitor sent the following to Webmaster Jay Shrake:... "Dear Jay, I have browsed your SCAMIT web site today and agree with you that it should be linked into the NBII Biodiversity, Systematics and Collections web site. Yours is a very nice web site, easily

navigable, highly aesthetic, and rich in quality scientific content. As "content" manager for this section of the NBII, I will be adding your link to our website soon. I have also passed your URL to the taxonomists associated with the Integrated Taxonomic Information System (ITIS) which is working on a somewhat similar standardized taxonomic database for biota of North America. I invite your group to learn more about ITIS at its main web site <http://www.itis.usda.gov/plantproj/itis/index.html>. ITIS is currently initiating a web site redesign project and your web site provides a nice example of how technical scientific information can be provided in a pleasing and effective manner.
Thanks for your message and I invite you to link back to NBII or ITIS if you find that appropriate.
Best regards,
Gary Waggoner, NBII Biodiversity Coordinator, USGS, Denver, CO"

I hope webmaster Jay takes this positive feedback to heart. We can never thank him enough for all he does for SCAMIT in maintaining our website, and constantly working to improve it. Members might follow Dr. Waggoner's suggestion concerning the ITIS database and the NBII, both of which are among the links on our webpage.

My Life as a Biologist
by Donald J. Reish
Chapter 16. I go to Europe

I made the first of many trips to Europe in 1962. I was asked to discuss a polychaete toxicological test at the First International Water Pollution Conference in London. I also presented a paper on the offshore State of California pollution study of 1955-59. The authors, Tibby and Barnard, could not make the trip. I took a 707 to Copenhagen with a midnight stop in Greenland. Wheeler North introduced me to the underground subway system in London. In those days you had to spend 2 weeks overseas otherwise the air fare was much higher. I made a trip to Plymouth and renewed by acquaintance with D. P. Wilson. I spent the week end with Robert and Mary Clark in Bristol. I also went to Gothenburg to visit some American friends. The conference was next to the Westminister Abbey and I walked through it each day on the way to the conference. I was startled to see the grave site of Sir Isaac Newton. I flew back to Copenhagen and went to the marine lab where I spent some time with Gunnar Thorson.

My second trip was 4 years later. I was asked to present my D.O. studies with the polychaetes that I had used as pollution indicators to the 3rd International Water Pollution Conference in Munich. I flew to Paris, saw some of the sights before flying to Marseille where I Met Gerard Bellan and his wife Denise Bellan-Santini. I went onto Monte Carlo and lost a few francs at the casino. Gerard Bellan was in Munich for the conference, and he discussed my presentation with me. After the conference I went to Amsterdam. As strange as it seems, the air fare to Europe today is about the same as it was then.

Trip number 3 was my first of several associations with FAO, the Food and Agriculture Organization of the United Nations. They sponsored an international pollution conference in Rome. I was also involved in a work shop associated with the conference. I presented a paper there on the use of polychaetes as indicators of marine pollution. The Bellans were there also. They had spent the summer before in Long Beach with me. I made my first of 3 runs on the Circus Maximus, the chariot track of Roman Days. I never managed to complete a lap in any try.

My 4th trip to Europe in 1973 was a very busy one. I attended an invertebrate development conference in the former Yugoslavia organized by John Costlow (Duke University). I took living *Neanthes*, *Capitella* and *Ctenodrilus*

with me to demonstrate the larvae. I then went to another Yugoslavian city to present a paper and chair a session at the Medical Oceanographic Conference. I was elected Vice President of the group. Next stop was Paris where I participated in a work shop in preparation for a meeting the next year. I had flown to Marseille where I met the Bellans. We then traveled to Cherbourg where his parents lived. I saw the door to the lab where Herpin studied the early development of *Neanthes* and other polychaetes, but didn't go inside.

There were many more trips to Europe in the 1970s, mostly to France, Italy and Yugoslavia. In 1975 Janice, the boys, and my mother went with me to Rome where I had another workshop. We then drove through northern Italy, France, Belgium, the Netherlands, and then to England before coming home. The longest trip was the one with my family; four weeks. The shortest was to Gothenburg, Sweden, to participate in an FAO workshop (it lasted only 2 days). Nearly all my trips to Europe have been paid by some organization and I think the primary reason was related to my studies with polychaetes and pollution. Gerard Bellan was about the only other person in the world who realized the importance of polychaetes in environmental studies at that time. [Next: Research Grants.]

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