



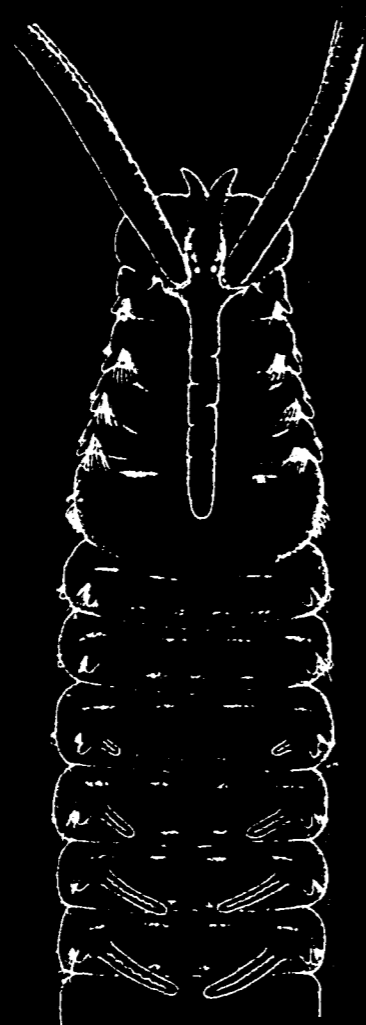
**Southern California Association of
Marine Invertebrate Taxonomists**

3720 Stephen White Drive
San Pedro, California 90731

August, 1994

Vol. 13, No.4

NEXT MEETING:	Polydora-Boccardia Complex of Polychaetes
GUEST SPEAKER:	Larry Lovell
DATE:	September 19, 1994
TIME:	9:30am - 3:30pm
LOCATION:	Larry's Home 1036 Buena Vista Dr. Vista, CA (see enclosed map)



(from Blake, 1971)

SEPTEMBER 19 MEETING

The September meeting will address polydorid polychaetes. Larry Lovell has been examining specimens provided by members, and from his own material, for several months. He is now ready to share his findings, and attempt to resolve problems experienced with these animals. Polydorids will probably occupy the entire meeting, but if you have problem SCBPP specimens of other groups, bring them in case there is time for them.

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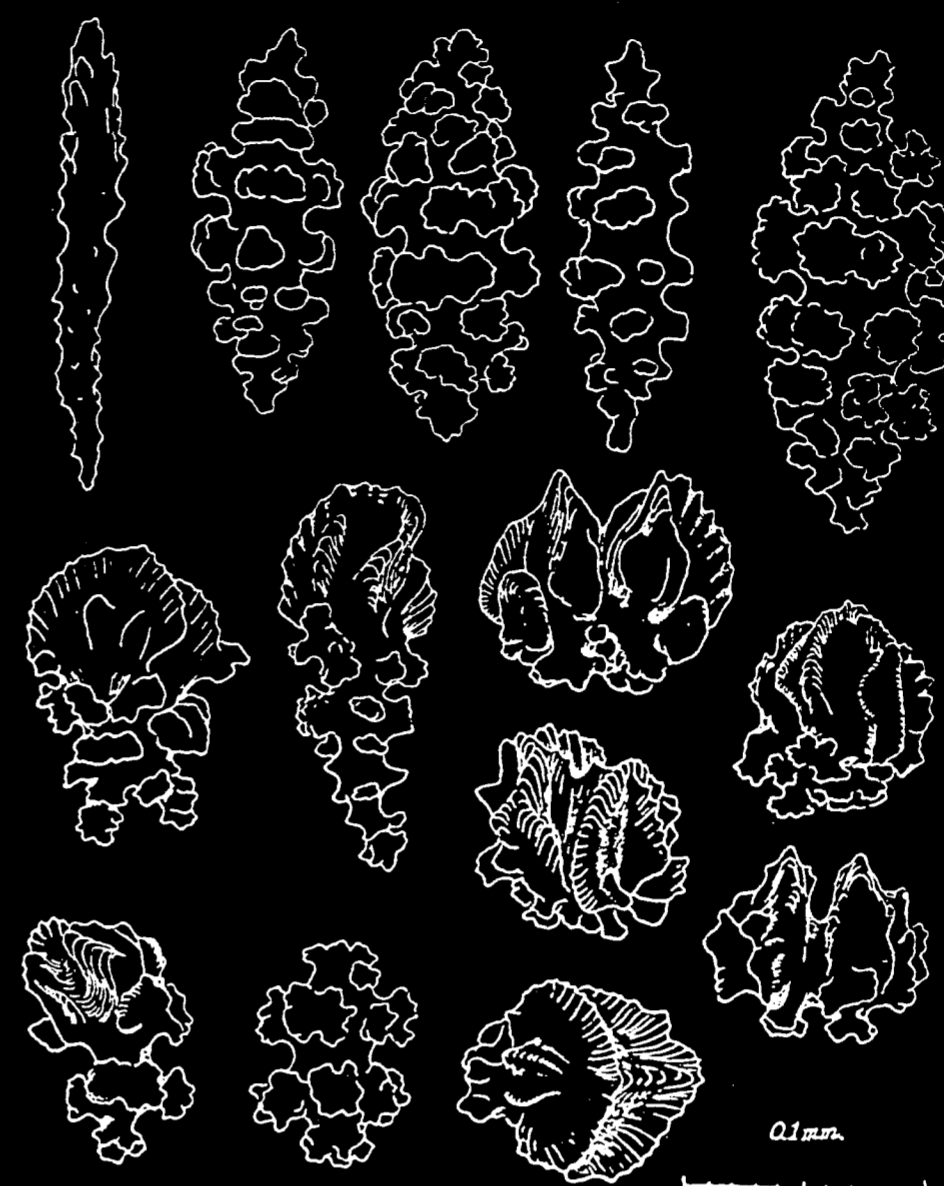
SCAMIT Newsletter is not deemed to be a valid publication for formal taxonomic purposes.

MINUTES FROM AUGUST 8 MEETING

The business portion of the meeting was very brief, consisting of an update on the status of the SCBPP participation of represented agencies. A recent publication was also brought to the attention of the attendees. In the latest issue of the Proceedings of the Biological Society of Washington (Vol. 107(2)) Jody Martin and Debby Zmarzly described a new pea-crab named *Pinnixa scamit*. Our thanks are due the authors for the honor of this patronym. They give SCAMIT a nice pat on the back in their explanation of the etymology of the name. The animal is the first taxon separated out of the *Pinnixa occidentalis* species complex.

Since there was no scheduled speaker the meeting was fairly free-form. We proceeded on a phylum by phylum basis starting with the Cnidaria. The first problem had to do with a sea-fan taken by all three of the agencies which had already completed trawling (Hyperion's trawls were scheduled to start later in the week). It had been identified in the field as *Adelogorgia phyllosclera*, but differed in appearance from a form which John Ljubenkov (MEC) had previously applied that name to. The form taken during the SCBPP trawls had relatively narrow branches (2-4mm), was dark red and had yellow-orange polyps in life. The branches were quite knobby in most of the specimens, and all had prominent black spots which surrounded each polyp's calyx. Colonies were up to 50cm high in one trawl off Pt. Loma, but most were 15-20cm tall. The form which John Ljubenkov had taken previously had broader branches, and lacked the dark pigment around the polyps.

Sclerite preparations had been made prior to the meeting. Examination of them showed that the SCBPP material had the characteristic assortment of knobby spindles, double wheels, and leaf clubs for Bayer's monotypic genus



(from Bayer 1958)

Adelogorgia. The original description of *A. phyllosclera* was at hand, as was Bayer's key to worldwide genera. The colonies keyed to *Adelogorgia*, and matched the original description quite well, except for branch diameters which fell on the low end of the range listed in the original description. The black spots so prominent in fresh collected, dried, frozen, and preserved material were also not mentioned in the description.

It was decided that we should treat this SCBPP form as a potential new species of *Adelogorgia* and refer to it as *Adelogorgia sp A* of SCAMIT. We continue to assume that the form John Ljubenkov had taken on Short Bank in Santa Monica Bay was the true *A. phyllosclera*. Gary Williams (California Academy of Sciences) got a section of that colony when he presented our July program. We will send him examples of *Adelogorgia sp A* for comparison as well. A colony of this species is living on a rock in the aquarium at the City of San Diego Water Utilities Dept. Biology Laboratory, and is being observed by their staff.

A second species of gorgonian was taken in a trawl along the shelf break at the outer edge of the San Pedro Sea Shelf by CSDLAC. This species is white in life, has broad branches with the outer layer loosely attached, and colorless sclerites. The sclerite complement was not like that of any gorgonian previously reported from Bight waters, and featured relatively large helically twisted spiny spindles and shorter warty spindles with a tendency to form tetrads. The upper limb of these tetrads is usually heavily and complexly elaborated into spines and lamellae reminiscent of thorn scales. The animal would not key in Bayer's worldwide generic key, and is of unknown family allocation. It will be called Gorgonian sp A of SCAMIT, and forwarded to Gary Williams for his consideration.

Other sea-fans taken during the SCBPP trawls included *Lophogorgia chilensis*, *Muricea californica*, *Eugorgia rubens*, and *Thesea* sp B. It was noted that no *Heterogorgia tortuosa* were encountered in the SCBPP trawls.

Sea-pens were also discussed. It was noteworthy that neither of the *Stylatula* species known from the area were common in the trawl samples, despite the number of shallow sandy stations occupied. The status of *Virgularia bromleyi* and *Virgularia galapagensis* seems to have been resolved to the satisfaction of the members at the July meeting. Both species were taken during the SCBPP trawls, in about equal numbers. The status of the species of *Acanthoptilum* was not suitably settled at the July meeting, and so for the purposes of the SCBPP trawl sampling we are referring all of them to *Acanthoptilum* sp pending reexamination of type material and resolution of the standing of the available names.

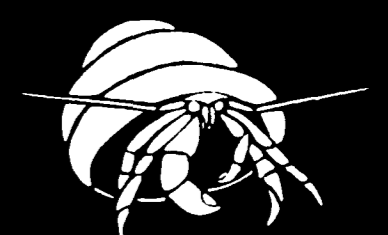
The only other pennatulids taken were *Pennatula phosphorea* and *Ptilosarcus gurneyi*. The characters separating these two were -

fewer, larger, and longer polyps on the leaves of *P. phosphorea*; much fatter peduncle in *P. gurneyi*; much larger leaves in *P. gurneyi*; and color - purple in *P. phosphorea*, light pink in *P. gurneyi*. There is also normally a bathymetric separation between the two, with *P. gurneyi* found in shallow shelf depths and *P. phosphorea* at lower slope and basin depths.

The nomenclatural status of *Metridium "senile"* was briefly discussed, but the use of the name was consistent among the members. No other anemones were taken in SCBPP trawls except some attached to a gorgonian colony taken off Orange County by MEC. John Ljubenkov will be working those up.

Sponges were the next group discussed. Few were taken during the program. MBC had taken three species in the Santa Barbara Channel; *Speciospongia confoederata*, *Hemectyon hyle*, and *Myxilla parasitica*. San Diego had taken a species thought to be *Craniella arb*. During the discussion it became apparent that this required verification: the colonies lacked the characteristic long spicule crown of *Craniella* and were usually found on gastropod shells borne by hermit crabs. This raised a suspicion that they might actually be a species of *Suberites*, either *S. suberea* or *S. ficus*. San Diego staff will do spicule preps on the vouchers and investigate the situation further. The only other sponge taken was a flat hexactinellid sponge taken by CSDLAC at the shelf break off Huntington Beach in 116m. It has been tentatively identified as *Poecillastra tenuilaminaris*, but should be examined by Karen Green for positive identification.

Annelids were only briefly considered. No group had encountered any legitimately trawl caught worms other than aphroditids. CSDLAC had taken *A. refulgida*, and San Diego had taken a large specimen with the long setae characteristic of *A. armifera*. The animal was reputed to have been roughly one foot long, but was neither photographed nor



retained. The size report was received skeptically by the membership present.

Mollusks were the next group to be discussed. Most of the animals examined were in the show-and-tell category. Specimens of *Platydoris macfarlandi*, *Babelomurex oldroydi*, *Pteropurpura macroptera*, and an *Armina californica* which was bright orange in life were circulated by CSDLAC, and a *Nipponotrophon scitulus* was shown by San Diego.

A specimen identified by San Diego as *Lischkea cidaris* was examined. It was left at that, but with misgivings. The number and nature of the tubercles ornamenting the shell were atypical. It will be examined further, and the result reported at a future meeting. The species should be assigned to the genus *Cidarina* according to Hickman and McLean 1990 (Systematic Revision and Suprageneric Classification of Trochacean Gastropods. Natural History Museum of Los Angeles County, Science Series #35).

MBC had several specimens of *Calliostoma turbinum* taken in the Santa Barbara Channel. They had been identified as *C. supragranosum*, but bore the characteristic orangeish iridescence of *C. turbinum*. San Diego reported taking a number of *Calliostoma canaliculata* from amongst algae at a shallow trawl station off Pt. Loma.

None of the other species of gastropods taken required discussion. All the bivalves taken were infaunal, and not considered as valid members of the trawl catch. MEC had one or two chitons they had taken in the trawls, but the specimens were not brought to the meeting and will need to be considered at a later session. Some discussion was made of the available literature on chitons, and it was suggested that the best available key and descriptions were to be found in Barry Putman's 1980 Taxonomic Identification Key to the Described Species of polyplacophoran

mollusks of the West Coast of North America (north of Mexico). This was issued by Pacific Gas and Electric, and may be available from them still.

Cephalopods discussed and examined were *Octopus californicus* and *O. rubescens*. No *O. dofleini*, *O. bimaculatus* or *O. bimaculoides* had been taken by any of the participating groups. The squids *Rossia pacifica* and *Loligo opalescens* were taken, but presented no difficulties. Distinctions between the two octopods considered are much easier in the field with live material, but even in the preserved specimens *O. californicus* had larger eyes, shorter arms, and a shorter web than *O. rubescens*. Specimens of both species from the Santa Barbara Channel were examined during the meeting, as well as specimens from the San Pedro Sea Shelf. The enlarged suckers near the base of the arms of ♂ *O. rubescens* (at the level of the web) were seen in one of the specimens examined. All present seemed to be identifying octopods equivalently.

Arthropods were also primarily show-and-tell. Nearly all of the considered species were decapods. The sole exceptions were some of the larger fish-lice (isopods) which met the 1cm inclusion criterion for trawl caught organisms. The only species examined was *Livoneca vulgaris*.

Two penaeid shrimp species were taken, *Sicyonia ingentis* and *Penaeus californiensis*. A specimen of *Penaeus* was circulated. No specimens of the target shrimp *Sicyonia penicillata* were taken during the trawls. None of the participating agencies had large catches of the smaller shrimp in the families Crangonidae and Hippolytidae. Crangonids reported from the SCBPP trawls included *Metacrangon spinosissima*, *Neocrangon zaca*, *Neocrangon resima*, *Crangon alaskensis*, and *Crangon nigromaculata*. None of these species appeared to present any difficulty to the participants. Hippolytids taken have, for the

most part, not been identified in the laboratory, and will be discussed at a future meeting.

None of the participants reported taking any thalassinid shrimp in the SCBPP trawls.

Hermit crabs likewise seemed to have not presented any problem. The only species examined turned out to be *Enallopaguropsis guatemoci*, two specimens of which were taken in the Santa Barbara Channel by MBC. Other species taken during the trawls included *Phimochirus californiensis*, *Orthopagurus minimus*, *Pagurus spilocarpus*, *Paguristes turgidus*, *Paguristes ulreyi*, *Parapagurodes laurentae*, and *Parapagurodes makarovi*.

Other crabs taken were the calappid *Platymera gaudichaudii*, the leucosiid *Randallia ornata*, the parthenopiid *Heterocrypta occidentalis*, the Portunid *Portunus xantusii*, and several majids and cancrids.

Considerable effort was expended in examination of several juvenile *Loxorhynchus* using the information presented in Garth 1958 (Brachyura of the Pacific Coast of America - Oxyrhyncha). Although there are supposed differences in the degree of deflection of the rostrum between the two species, this is hard to apply in practice. We suggest that the simplest method for definitive separation is the presence of one hepatic spine in *L. crispatus*, and two in *L. grandis*. These are arranged one above the other, and both can be felt through the "decorations" on a living animal if the specimen is squeezed at the level of the hepatic spines between the thumb and forefinger. The hepatic spines are the first lateral pair of spines following the post ocular spines.

A specimen of *Podochela lobifrons* taken by MBC in the Santa Barbara Channel was examined and confirmed.

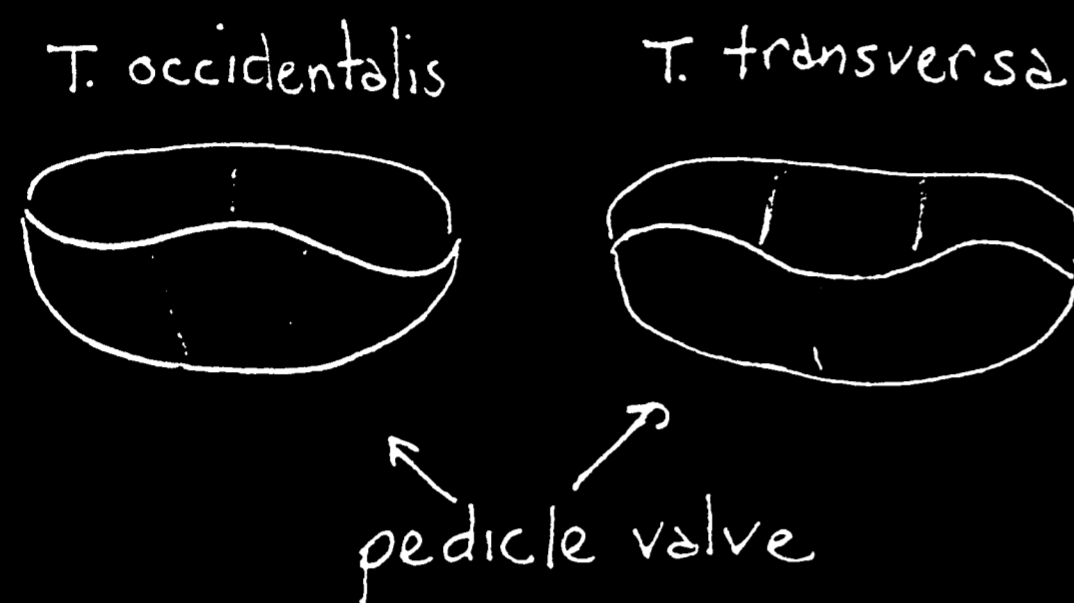
A specimen of a very rare species of xanthid

crab was taken by San Diego. They collected a single specimen of *Xanthias* (now *Micropanope*) *latimanus*. The species is keyed and briefly described in Schmitt 1921 (Decapods of California), and the specimen conformed to this description. The species remains unillustrated, however, and there are many inadequacies in the available descriptions. The original description of Lockington (1877) was not available at the meeting. The identity of this specimen must remain in question at this time. It will be reported on at a later meeting.

Before starting echinoderms we took a look at brachiopods. Several of the agencies had encountered brachiopods in the SCBPP trawls. The most diverse group was taken by CSDLAC at the shelf break off Huntington Beach in 116m. The bottom here was apparently flat shale, with a very thin veneer of coarse shell hash, small pebbles, and coarse sand. Specimens of *Laqueus californianus*, *Terebratulina crossei*, and *Terebratalia occidentalis* were examined during the meeting. Literature consulted included Eric Hochberg's recent summary of brachiopods from the SCAMIT Newsletter (Vol. 11 #10), Bernard's 1972 "The living Brachiopoda of British Columbia", and Hertlein & Grant's 1944 "The Cenozoic Brachiopoda of Western North America."

Following conversations with Eric Hochberg, Ron Velarde had suggested that the *Terebratalia* we were finding in the Bight might be *T. occidentalis*. As this species is not included in the key distributed in the newsletter (which was drawn from Bernard 1972), the key to the genus in Hertlein and Grant was used. It clearly indicated that it was indeed *T. occidentalis* we had taken. The key external difference between *T. occidentalis* and *T. transversa* is the nature of the mesial flexure of the valves. In *T. occidentalis* the mesial flexure of the pedicle valve (the one with the hole for the pedicle to exit) is concave, and in

T. transversa it is convex (see figure below). One must be careful in interpreting this: we are talking about the flexure of the valve, not the profile of the lip (the two are exact opposites - if the flexure is concave, the profile of the lip is convex).



The mesial flexure is not equally prominent in all specimens. At least one of those examined had a very weak mesial flexure, actually appearing convex both in the pedicle and the branchial valves. The strength of the ribbing, and number of ribs on the shell was also quite variable, even in the eight or so specimens examined.

In the field the *Terebratulina* were initially taken to be light colored variants of *Laqueus*. They are similar in size to small *Laqueus*, are within the range of shape variability in *Laqueus*, and are similarly inflated. On closer examination, however, they were clearly separable from the larger, redder *Laqueus*. Small specimens of *Terebratulina* are prominently ribbed (*Laqueus* are smooth), although the ribs are much more subtle than in *Terebratalia*. Small specimens are also more elongate than *Laqueus* of the same size.

As they mature the color differences in the shells intensify, with *Laqueus* becoming increasingly red, and *Terebratulina* tending to a dirty light tan. In most specimens the mantle canals on the underside of the valves are clearly visible. If they are, mixed lots of *Laqueus* and *Terebratulina* can be easily separated. *Laqueus* has a pair of branching

red canals, while *Terebratulina* has a pair of net-like anastomosing white canals. The canals are not well marked in small specimens, but external shell characters can be used to separate them.

There are two species of *Terebratulina* reported to occur in the Bight, *T. crossei* and *T. unguicula*. The two species are quite similar, but can be separated by the character of the ribbing, which produces marginal crenulations and is usually dichotomous near the shell margin in *T. unguicula*. In the present specimens of *T. crossei* the radial ribbing is reduced to very fine striations, and produces no crenulation of the valve margins. Both species are included in the key in the SCAMIT Newsletter Vol 11 #10.

The last group considered was the echinoderms. LACSD took the nudibranch-like holothuroid *Psolus chitonoides* at the same shelf-break station where brachiopods were common. Several groups had encountered species of *Cucumaria/Pseudocnus* which could not be identified without examination of dermal ossicles. Their identity will be reported on at a later meeting. Neither *Parastichopus johnsoni* or *P. leucothele* were seen in the SCBPP trawls.

Ophiuroids were not discussed much beyond noting that if they met the size criterion for inclusion in the trawl (greater than 1cm in any dimension) they should be counted and reported. One of the trawls taken in the Santa Barbara Channel by MBC contained a huge collection of large *Ophiura luetkeni* (estimated at 12,000 individuals). The large euryalan *Gorgonocephalus eucnemis* was taken several times in the Santa Barbara Channel by MBC, but not further south. Seven ophiuroid species were taken in the LACSD trawling area from south Santa Monica Bay to the San Pedro sea-shelf, most of which could be identified in the field because of their relatively large size.

Echinoids presented few problems, although in Santa Barbara Channel collections juvenile *Strongylocentrotus purpuratus* were taken mixed with *Lytechinus pictus*. There seemed to be ambiguity in the application of the term "secondary spines" in the key to regular echinoids of Word and Charvat (1975. Invertebrates of Southern California Coastal Waters I. Select groups of annelids, arthropods, echinoderms, and molluscs) which led to uncertainty over separation of these two taxa. The key refers not to just short spines as "secondary spines" but to spines in addition to the primary spine on each plate. Since plate margins are difficult or impossible to see without cleaning the test, this character has little utility in the field.

The two species can be distinguished in the field on the basis of both structure and color. The dorsal tube feet of *Strongylocentrotus* are both larger and much more numerous than those of *Lytechinus*. The color of the spines differs: green with purple tips in young *S. purpuratus*, and white to tan (sometimes banded) with white tips in *L. pictus*. The spines are of similar length and diameter under most conditions, but are longer in both species when the specimens are from quieter waters. As the *Strongylocentrotus* mature the spines become completely purple.

Most of the discussion centered on asteroid. All six local species of sand stars (3 *Astropecten* and 3 *Luidia*) were taken during the SCBPP trawls. On several occasions specimens of *Astropecten verrilli* were taken which were much lighter in color than their usual grayish purple. Several of these were collected for verification of identity, and they all proved to be just *A. verrilli*. Several *A. ornaticornis* were taken, some off Los Angeles Harbor, and some in the Santa Barbara Channel. Several small juvenile *A. armatus* were taken which showed that the laterally directed small tubercles on the supramarginal plates about 1/2 to 2/3 of the way out on the

arms, are formed earlier than the large dorsally pointing tubercles on the supramarginal plates in the interambulacra. Check for the latter first, but if they are lacking check for the small laterally directed tubercles next. In specimens so young that these tubercles have not yet formed you are forced to rely on the relatively longer and more robust lateral spines, and the smaller arm length to disc diameter ratio to separate *A. armatus* from *A. verrilli*.

Some confusion still exists in the identification of *Luidia armata*, and adambulacral pedicellariae have proven to be difficult to detect, even with a hand lens, under field conditions. The characteristic differences in color pattern between *L. armata* and *L. foliolata* showed no intergrades in any of the specimens I (Don Cadien) observed on the CSDWUD, CSDLAC, or OCSD trawls. *Luidia armata* always had a blotchy "mosaic" pattern of multi-paxillar patches of white, purple, brown (sometimes light brown or tan), and *L. foliolata* had only scattered light colored individual paxillae on a darker field.

Identification of *Luidia asthenosoma* was uncontroversial for the most part, although some small *Luidia* from the Santa Barbara Channel tentatively identified as *L. asthenosoma* turned out to be *L. foliolata* when examined during the meeting. Most if not all of the *L. asthenosoma* taken in the SCBPP trawls were small, with an arm spread of less than three inches. Appearance of these juveniles differed from that of the adults only in that the arms were proportionally shorter in the juveniles (and consequently appeared less narrow).

Specimens of *Sclerasterias heteropaes* taken off Pt. Loma and off Los Angeles Harbor were also quite small. All had the characteristic color pattern of light and dark transverse banding of the arms.

Aside from the sand-stars, little difficulty was experienced in identification of starfishes in the field during the SCBPP trawls. A problem multiarmed starfish was taken by MBC in the Santa Barbara Channel which was darker and redder in color than the typical pink *Rathbunaster californicus*. There had been some concern in the field that this might be a light colored *Pycnopodia helianthoides*. Examination of the specimen at the meeting verified it as *R. californicus* based on the ratio of disc diameter to arm length, and the fragility of the arm attachment. In *P. helianthoides* the arms are only shed under very unusual circumstances, and are very well attached to the body. In *R. californicus* the arms are deciduous, and are very loosely attached to the central disk. The central disk of *P. helianthoides* is much larger than that in *R. californicus*, reaching almost a one to one ratio with the arm length.

Other species seen were *Pisaster brevispinus*, *Mediaster aequalis*, *Hippasteria spinosa*, *Henricia leviuscula annectens*, and *Leptasterias hexactis*, and *Asterina miniata*.

Several of the SCBPP collected echinoderms bore ectoparasitic mollusks when they came up in the trawl. All were eulimids, and all examined specimens were *Melanella rutila*. They were observed on *Astropecten verrilli*, *Pisaster brevispinus*, and *Parastichopus californicus*. One average sized *P. brevispinus* taken off Orange County was afflicted with more than 70 of these parasitic snails with no outward signs of distress or ill health.

Urochordates were not discussed at the meeting. If any turn up in FID materials returned to the laboratory for further processing, they will be treated in a future meeting.

TOPICS FOR FUTURE MEETINGS

Several groups where problems are likely to be encountered during identification of the SCBPP benthic samples have yet to be considered. Our next meeting will deal with one polychaete problem area, and Leslie Harris will be presenting the results of her reexamination of *Pista* types and material early in 1995 (probably January).

Mollusk problem areas include bullomorph cephalaspideans, solenogasters, scaphopods, and *Parvilucina* speciation among others. Please have these areas in mind as you work on your samples, and set aside material to be examined when the above areas are addressed. Be thinking of other problem areas SCAMIT members will have to deal with in the processing of the SCBPP samples and suggest them as focus topics for future meetings.

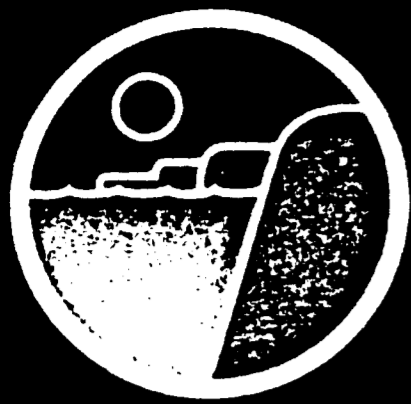
JOB ANNOUNCEMENT

Southern California Coastal Water Research Project has a current employment opportunity for a Research Technician. Please see the enclosed flyer for details.

SCAMIT OFFICERS:

If you need any other information concerning SCAMIT please feel free to contact any of the officers.

President	Ron Velarde	(619)692-4903
Vice-President	Don Cadien	(310)830-2400 ext. 403
Secretary	Cheryl Brantley	(310)830-2400 ext. 403
Treasurer	Ann Dalkey	(310)648-5611



SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT

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REQUIREMENTS

Graduation from an accredited college or university with a B.A. degree in Biology is required. A Master's degree in Marine Biology is preferred.

A minimum of two years of post-graduate work experience in biological research is also required. The successful candidate will have demonstrated experience writing biological reports and using computers. Experience with Dbase and Sigma Plot or similar software programs is preferred.

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Applications must be accompanied by a 1-2 page statement of the applicant's knowledge, skills, and abilities as they relate to this position and a sample of the applicant's biological report writing.

The recruitment period will remain open until a sufficient number of applications have been received. Applicants are encouraged to submit their application materials as soon as possible. Applicants best meeting the requirements of the position will be invited to an interview.

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SCCWRP is governed by a nine-member Commission, consisting of representatives from the founding agencies, as well as regional, state, and federal regulatory agencies. SCCWRP's member agencies include the City of Los Angeles, County Sanitation District No. 2 of Los Angeles County, County Sanitation District No. 1 of Orange County, the City of San Diego, the California Regional Water Quality Control Board (Santa Ana, Los Angeles, and San Diego regions), the California State Water Resources Control Board, and the U.S. Environmental Protection Agency, Region IX.

SCCWRP's mission is to support the protection and conservation of coastal waters by providing information to the general public, local agencies, and regulators on the impact of waste discharges on the marine environment. SCCWRP's staff conducts extensive research to identify sources of contaminants, determine their fate and transport throughout the ecosystem, and evaluate their effects on marine organisms.

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