



Southern California Association of
Marine Invertebrate Taxonomists

3720 Stephen White Drive
San Pedro, California 90731

July, 1991

Vol. 10, No. 3

NEXT MEETING: Sabellid Polychaetes

GUEST SPEAKER: Dr. Kirk Fitzhugh of the Los Angeles County
Museum of Natural History

DATE: August 12, 1991

LOCATION: Alan Hancock Foundation
University of Southern California
Los Angeles, CA

MINUTES FROM SCAMIT MEETING ON July 15, 1991

Ron Velarde announced that Dr. Jim Thomas has been asked to testify before federal regulators concerning the standardization of environmental monitoring on the east coast. SCAMIT will prepare a packet of information about our own efforts along the coast of southern California.

Tony Phillips of the Hyperion Treatment Plant said that Robert Smith and Brock Bernstein of Eco Analysis and the City of Los Angeles are developing a computer program to standardize their taxonomic data base. The software package will be able to coordinate present and historical benthic data. It is hoped that eventually all the agencies in the Southern California bight will be integrated into this system. A meeting will be planned sometime in the future to get other agencies involved.

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

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

Don Cadien announced the following name changes for Axiid shrimps:

Previous binomen	New binomen
<u>Axiopsis spinulicauda</u>	<u>Acanthaxius spinulicaudus</u> (Rathbun, 1902)
<u>Calastacus quinqueseriatus</u>	<u>Calocarides quinqueseriatus</u> (Rathbun, 1902)
<u>Calastacus investigatoris</u>	<u>Calocaris investigatoris</u> (Anderson, 1896)

Reference:

Sasaki, K. and M. de Saint Laurent. 1989. A checklist of Axiidae (Decapoda, Crustacea, Thalassinidae, Anomura), with remarks and in addition descriptions of one new subfamily eleven new genera and two new species. Naturalists 3: 104 pp. (Tokushima Biological Laboratory, Shikoku Women's University)

Thanks to Janet Haig for calling this paper to SCAMIT attention and providing a copy.

Also Terebra danai Berry, 1985 has been synonymized with Terebra hemphilli Vanatta, 1924. Reference:

Bratcer, Twila and W.O. Cernohorsky. 1987. Living Terebras of the World: Monograph of the Recent Terebridae of the World. 240 pp. American Malacologists, Melbourne, Florida.

The SCAMIT Christmas party has been tentatively scheduled for Dec 7 at Cabrillo Marine Museum.

Karen Green spoke at the morning session on "A New Approach for Analyzing Trophic Composition of Benthic Communities." Dr. Rick Brusca presented "Evolutionary and Ecological Insights Gained from Studies on Marine Isopods Crustaceans" followed by Regina Wetzer who gave a brief history of the museum's invertebrate collections along with a tour. Both sessions were well attended and highly informative. Abstract have been included in this newsletter.

Thanks again to the speakers. A special thanks to Dr. Rick Brusca and Regina Wetzer of the San Diego Natural History Museum for hosting the meeting.

For the August 12th meeting bring your difficult specimens of Sabellids. Also bring representative specimens of phoronids to Larry Lovell and he will forward them to Dr. Zimmer. Or you can mail them to:

Dr. Russ Zimmer
Department of Biology
University of Southern California
Los Angeles, CA 90089-0371.



The venue for the September 23rd meeting has been tentatively change to the Alan Hancock Foundation on the campus of the University of Southern California.

SCAMIT PICNIC:

The annual SCAMIT Picnic has been scheduled for September 14th at San Clemente State Beach Park from 10 am to 3 pm. There will not be a specific site reserved, but Kelvin Barwick will arrive early to stake out an area. It will be a \$6.00 per car day use fee to be paid as you enter the park. As usual SCAMIT will be provide the main dish, drinks, and eating utensils. Members are requested to bring a side dish. We will need a head count in order to plan for the food and drinks so let the secretary know as soon as possible.

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

President	Ron Velarde	(619)226-0164
Vice-President	Larry Lovell	(619)945-1608
Secretary	Kelvin Barwick	(619)226-8175
Treasurer	Ann Martin	(213)648-5317

A New Approach for Analyzing Trophic Composition
of Marine Benthic communities

Karen D. Green, Consultant, Research Associate of Natural
History Museum of Los Angeles (619) 724-1819

Community structure changes in response to natural and man-induced gradients. Most benthic studies assess the community by documenting changes in species composition with multivariate techniques. Describing why species abundance and distribution patterns change is more difficult.

Analysis of trophic composition, which organizes community structure, has the potential to provide insight to species patterns. To date no study has shown a good parallel between trophic composition and community structure. This lack of correspondence suggests limitations associated with existing trophic classification schemes.

Although trophic analyses have a long history, there is no standard for analysis. Studies at the community level generally assign taxa to a few feeding modes (e.g., suspension, deposit, carnivore, herbivore), which are treated as exclusive categories. Studies of community subsets (e.g., amphipods, polychaetes) often recognize multiple feeding modes (consisting of combinations of primary feeding modes; e.g., suspension-deposit feeders). In addition, community subset analyses more commonly consider other features of the feeding system such as feeding site, motility or life style, and morphology.

Research directed studies of food resources and organism feeding provide support for approaches that consider multiple aspects of the feeding system. However, the relative importance of the aspects, alone or in combination, in describing trophic composition remain unanswered.

My approach concerns evaluating trophic composition of marine benthic invertebrate communities. The approach is the first to apply multiple aspects of the feeding system (mode, site, motility, tube dwelling, organism size) and multiple feeding modes to a community analysis. The approach is unique in incorporating a method for evaluating the information content associated with different feeding modes and their feeding-system subsets. In addition, the approach incorporates a method for reducing complexity by collapsing uninformative trophic subsets within larger functional groups. These method techniques give a flexibility to the approach that should increase its performance when applied to different environmental conditions.

Application of the new approach to ocean outfall monitoring data yielded promising results. Trophic data patterns showed correspondence with trends identified with multivariate classification analysis. Further, the results were suggestive of mechanisms (e.g., biotic, disturbance, physical) associated with environmental and outfall related gradients.

Selected reading: prepared by Karen Green July 12, 1991

Biernbaum, C.K. 1979. Influence of sedimentary factors on the distribution of benthic amphipods of Fishers Island Sound, Connecticut. *J. Exp. Mar. Biol. Ecol.* 38:201-223.

Commuto, J.A. and W.G. Ambrose Jr. 1985. Multiple trophic levels in soft-bottom communities. *Mar. Ecol. Prog. Ser.* 26:289-293.

Fauchald, K. and P.A. Jumars. 1979. The diet of worms: a study of polychaete feeding guilds. *Oceanogr. Mar. Biol. Ann. Rev.* 17:193-284.

Lopez, G.R. and J.S. Levinton. 1987. Ecology of deposit-feeding animals in marine sediments. *Q. Rev. Biology.* 62(3):235-260.

Muschenheim, D.K. 1987. The dynamics of near-bed seston flux and suspension-feeding benthos. *J. Mar. Res.* 45:473-496.

Penry, D.L. and P.A. Jumars. 1990. Gut architecture, digestive constraints and feeding ecology of deposit-feeding and carnivorous polychaetes. *Oecologia.* 82:1-11.

Selected reading list: Page 2 from Karen Green

Sanders, H.L. 1960. Benthic studies in Buzzards Bay. III. The structure of the soft-bottom community. *Limn. Oceanogr.* 5:138-158.

Self, R.F. and P.A. Jumars. 1988. Cross-phylectic patterns of particle selection by deposit feeders. *J. Mar. Res.* 46:119-143.

Taghon, G.L. 1982. Optimal foraging by deposit-feeding invertebrates: roles of particle size and organic coating. *Oecologia (Berl.)* 52:295-304.

Walker, K.R. and R.K. Bambach. 1974. Feeding by benthic invertebrates: classification and terminology for paleoecological analysis. *Lethaia* 7:67-78.

Whitlatch, R.B. 1980. Patterns of resource utilization and coexistence in marine intertidal deposit-feeding communities. *J. Mar. Res.* 38(4):743-765.

Yonge, C.M. 1928. Feeding mechanisms in the invertebrates. *Biol. Rev.* 3:21-76.

Young, D.K. and D.C. Rhoads. 1971. Animal-sediment relations in Cape Cod Bay, Massachusetts. I. A transect study. *Mar. Biol.* 11:242-254.

EVOLUTIONARY AND ECOLOGICAL INSIGHTS
GAINED FROM STUDIES ON MARINE ISOPOD CRUSTACEANS

Richard C. Brusca
Curator and Chair, Invertebrate Zoology Department
San Diego Natural History Museum

Various research programs on warm temperate and tropical marine isopod crustaceans have demonstrated the usefulness of this group in ecological, evolutionary, and phylogenetic studies. Marine isopods play important ecological roles as beach scavengers, kelp and seaweed grazers, mangrove borers, fish parasites and predators, as links between primary producers and carnivores, and as food for near-shore fishes. Because isopods have direct development, brood their young, and have limited dispersal capabilities, they are useful for historical biogeographic analyses and studies of ecological regulation of geographic distribution. Predatory fishes have probably directly influenced the evolution of isopod morphology and behavior, and carnivorous isopods may have directly influenced the evolution of epibenthic fish behaviors. The phylogeny of the order Isopoda has recently been analyzed by use of computer-assisted numerical phylogenetic programs. The analysis suggests that the first isopods that evolved were herbivores and scavengers, with crushing/grinding mandibles and limited swimming capacity (e.g. phreatoicideans, asellotans, oniscids, calabazoids, valviferans, and sphaeromatids). These "short-tailed" isopods possess little or no swimming ability, have cylindrical terminal uropods, and lack a distinct tailfan. The more highly derived isopods (i.e., the "long-tailed" isopods; anthurideans, epicarideans, gnathiids, and non-sphaeromatid flabelliferans) are carnivores, predators, and parasites. They possess piercing/slicing mandibles and have a body morphology specifically adapted for swimming (e.g. streamlined body, coxal plates, broad tailfan). The evolution of the more highly derived body form in isopods (the "long-tailed" isopod morphology) was probably influenced by confrontation with predatory fishes as isopods emerged from benthic habitats and adopted free-swimming, epibenthic, carnivorous lifestyles.

The Marine Invertebrates Department at the San Diego Natural History Museum opened in 1930's and was initially staffed by Miss Julia Bristol (paid) and Mr. Steve Glassell (volunteer). In 1964 Dr. Ed Wilson, the Department's first professional scientist, was appointed Curator. Dr. Wilson specializes in fossil crustaceans and corals and presently heads the Invertebrate Paleontology Department at the LACM. In 1968 George Radwin was appointed Curator and was the first professional malacologist to head the Department. He died in 1977. From 1978 to 1980 Hans Bertsch, an opisthobranch specialist, served as Curator. Between 1980 to 1987 the department had no professional curatorial or collections care staff and it languished.

In the fall of 1987 Dr. Rick Brusca was appointed to the newly created Joshua L. Baily, Jr. Curatorial Chair. He had previously been at U.S.C. and the Allan Hancock Foundation for 12 years and served as Chairman of the Invertebrates Section at the LACM for 3 years. The Department also added a Collections Manager, Regina Wetzer, in 1987. Since Sept. 1987 the Department has added: 27,000 lots of molluscs (~1.3 million specimens), and 60,000 lots of non-molluscan invertebrates (~2.9 million specimens). All this material is expeditionary collected, wet-preserved, and bears accurate data. It comes from Central and South America, the Caribbean, the West Pacific, temperate and tropical Eastern Pacific, and the southeastern United States.

Since our arrival we have instituted the Department's first Accessions Catalog, and have begun developing the Department's first policy manual on Departmental Associates, collections care, deposition of type material, and data requirements for research material, etc. We have computer inventoried the type collection and all non-isopod Crustacea, and are presently working on inventorying the mollusc collections.

Our total research collections contain approximately 4.8 million specimens (215,000 lots) of which 1.8 million are mollusc specimens (150,000 lots), and the remaining 3.0 million are non-mollusc (mostly Crustacea) specimens (65,000 lots). Our type collections contain roughly 1500 specimens, 500 of which are mollusc species, and the remaining 50 are Crustacea species.

The strengths of our collections lie in its large mollusc and Crustacea holdings. Both the mollusc and Crustacea collections are very strong in Southern California and tropical eastern Pacific holdings, and have material dating back to the turn of the century. The collections are also strong in Caribbean and Indo-West Pacific material, due to research and collecting efforts of former staff, associates, and donors.

Notable among our mollusc holdings are the donated private collections of Joshua L. Baily, Herbert N. Lowe, and Fred Baker, and types of over 500 species of molluscs. Also present are collections from Charles Russell Orcutt, Donald Shasky, Joyce Gemmell, Hans Bertsch, and others.

Notable among the crustacean holdings are the donated personal collections of E. W. Iverson, R. C. Brusca, much of the Steve Glassell material, the Brusca-Wetzer Central and South America and South Pacific collections, the former Burke Museum (University of Washington) invertebrate collections, and the entire 10-year quantitative benthic collections of the California Coastal Commission's mandated MRC San Onofre offshore survey (~86,750 lots).

As a result of our research interests, we have a fairly complete collection of the marine isopods of California. At the present we are finishing a monograph on the tropical Eastern Pacific flabelliferan isopods of the family Cirolanidae; Rick Brusca and Scott France have recently submitted a monograph on the Eastern Pacific genus Rocinela for publication; and Rick and Regina continue to work on a handbook of the California marine isopods.





EMPLOYMENT OPPORTUNITY

BIOLOGIST I (MICROBIOLOGY)

*SALARY: \$2280 - \$2748, Monthly
*\$27,360 - \$32,976, Annually

*FIRST DATE TO APPLY: July 5, 1991 LAST DATE TO APPLY: Open. Apply promptly.
May close with 5 days notice.

REQUIREMENTS: You may qualify by meeting one of the following:

- 1) Bachelor's degree in a biological science (Microbiology, Biology, Marine Biology, Botany, Zoology).
- 2) Bachelor's degree in a closely related life science field (Environmental Science/Toxicology, Medical Technology, Medicine, Nursing, Pharmacy) and a minimum of one course in basic microbiology and one upper-division course and lab in invertebrate biology, fresh water biology, bio-oceanography, oceanography, bacteriology, microbiology, biology, botany or zoology.

NOTES:

- 1) Graduating seniors in their last semester or quarter of college may apply and will be considered for employment. If hired, final college transcripts showing degree awarded must be submitted within two months of graduation.
- *2) Completed coursework or experience in wastewater microbiology, environmental microbiology, parasitology, virology, public health, or medical technology is highly desirable..
- 3) If you do not meet the educational requirements, you may substitute any combination of full or part-time experience which equals one year of full-time experience performing laboratory analysis for each year of education lacked. Qualifying experience must include conducting laboratory analyses, including any of the following: conducting marine and aquatic studies; testing and analyzing water or waste water samples for the presence of bacteria; identifying marine and fresh water microscopic organisms; examining marine organisms using the microscope; or analyzing biological samples.

License: A valid California Class C (Class 3) driver's license, which permits you to drive an automobile, may be required for some positions at the time of hire.

DUTIES:

- *This is the entry-level professional position into the City's Biologist series. Biologists I analyze ocean or lake water samples aboard an ocean monitoring vessel or pontoon boat; examine and perform bacteriological, parasitological and virological tests on ocean water, waste water and sewage sludge samples; examine and perform biological and bacteriological tests and analysis of marine and aquatic organisms, pond and lake samples; design and implement scientific tests; collect, statistically analyze and interpret data; write technical reports; explain biological and microbiological studies and programs to scientific and lay groups; and perform related work as assigned.
- *Career Opportunities may include Biologist II, \$3178 a month maximum.

**APPLICATION/
SCREENING
PROCESS:**

Applicants must submit a Special Application for this position.

The screening process will consist of a review of the application for minimum requirements. All qualified applicants will be placed on the eligible list, which will be in effect for one year. The eligible list will consist of one category. All candidates will receive written notice of their eligibility expiration date. The hiring department will contact and interview candidates as needed to fill vacancies.

#T0062 Biologist I (Recruiting Title: Biologist I (Microbiology))
October 27, 1989
*Rev. 4, (7-5-91)

Pamela Hightower, Assigned Analyst
DOC. 1121

FOR ADDITIONAL INFORMATION SEE REVERSE SIDE

The City has an active Equal Opportunity Program for employment of women, minorities, and persons with disabilities. Disabled applicants who require special testing arrangements may call 236-6358.

Applicant Information

APPLY: EMPLOYMENT INFORMATION CENTER
CITY ADMINISTRATION BUILDING
LOBBY 202 "C" STREET, SAN DIEGO, CALIFORNIA
24-hour job information: (619) 236-6463
Hearing Impaired For TTY Call (619) 236-6950

APPLICATION INFORMATION

Application materials must be received at the Employment Information Center NO LATER THAN 5:00 P.M. ON THE FINAL FILING DATE. Postmarks as proof of meeting the final filing date are not accepted.

1. Starting salaries will be determined by the hiring department.
2. Relevant part-time work will be evaluated towards meeting the required experience.
3. Unless otherwise stated, relevant experience may be substituted for education.
4. Eligible lists may be extended by the Civil Service Commission.
5. Examination requirements and processes may be revised.
6. Experience, education, and all other information provided by an applicant orally or in writing are subject to verification. Any misrepresentations or false statements may be cause for disqualification or dismissal from employment.

GENERAL REQUIREMENTS

Requirements must be met at time of application unless otherwise stated.

The minimum age for most full-time employment is 18, unless you are 17 and a high school graduate. You must have the legal right to work in the U.S. or have U.S. citizenship. Persons hired must present acceptable proof of identity and the legal right to work in the United States and the authenticity of the documents must be verified before starting work. After hire, you will be required to sign a loyalty oath and may be required to live in San Diego County.

A CITY MEDICAL EXAMINATION which may include a drug screen and/or completion of a medical history questionnaire may be required before hire or promotion.

The City of San Diego is committed to a drug and alcohol free workplace.

A CONVICTION RECORD FORM must be submitted before hire.

VETERANS PREFERENCE: Only those persons who have not worked since being discharged from the military and who have served in a period of military draft may be eligible for veterans points. Military retirees are not eligible for veterans points.

EMPLOYEE BENEFITS

Salaried City Employees are eligible to participate in a benefit program including holidays, vacations, savings and reurement plans, health programs, and other benefits. Benefits may change due to employer-employee contract negotiations.

CAREER OPPORTUNITIES are available after six months of service. Employees may qualify to apply for promotional examinations not available to the public.

The provisions of this bulletin do not constitute an expressed or implied contract.

DIVERSITY BRINGS US ALL TOGETHER



MAILING ADDRESS
JOBS
CITY OF SAN DIEGO
PERSONNEL DEPARTMENT
202 "C" STREET
SAN DIEGO, CA 92101-3861

ADDRESS CORRECTION REQUESTED