



Southern California Association of Marine Invertebrate Taxonomists

3720 Stephen White Drive
San Pedro, California 90731

February, 2000

SCAMIT Newsletter

Vol. 18, No. 10

SUBJECT:	General Non-polychaete problems
GUEST SPEAKER:	None
DATE:	13 March 2000
TIME:	9:30 a.m. to 3:30 p. m.
LOCATION:	City of San Diego Marine Biology Lab 4918 N. Harbor Dr. #201

NEXT MEETING

The March meeting will be held at the CSDMWWD Marine Facilities in San Diego on 13 March. The main topic will be ampeliscid amphipods, both *Byblis* and *Ampelisca*, but there will be room for other subjects chosen from among non-polychaete taxa.

CAPRELLID UPDATE

The following is a copy (edited) of an email from Dean Pasko and is reprinted here with his permission.

I believe that *Caprella* sp F Paquette is actually immature *Caprella californica*. I was just reviewing a small specimen of *Caprella* sp which I believed to match the specimen of *Caprella* sp F Paquette discussed at the November 99 SCAMIT meeting and reported on in the Vol 18, No 7 NL (pages 14-15). I made a note to look into *Caprella* sp F because



Malmgreniella nigralba

Anterior dorsal view

LA Co. San District 0197-1D 30 meters

Identified by and provided by Cheryl Brantley

Image by R. Rowe 16July98

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

Carol's specimen reminded me of some specimens that I had seen in PT Loma samples. I recently found one in a Regional sample (IBWC station). The specimen is fairly small, 4 mm, relative to the 14+ mm adults available for comparison. It does not have a spine between the insertions of gnathopods 2, but it does have a "hump" at this point with a very small protuberance at the pinnacle. It turns out that the 14 mm *C. californica* specimens have very small spines between gn 2 (especially when compared to the rather large spine found in *C. mendax*, for example). So I believe this small hump is the pre-cursor to the adult spine.

Additionally, one of the points we noted at the SCAMIT meeting was the acute tip and distinctly forward pointing head spine of *Caprella* sp F, which appeared different from what we all remembered of *C. californica*. It turns out that of my 5 adult specimens, 4 had long dorsally directed head spines (i.e., pointing upwards), while one had a forward, very acutely tapered head spine, just like this 4 mm specimen. Other characters of the antennae, gnathopods, etc. matched well, especially if allowances were made for the great difference in size.

Consequently, without having noted the size of Carol's specimen, I am pretty well convinced that her *Caprella* sp F is simply an immature *Caprella californica*.

AUSTIN B. WILLIAMS

The recent death of Dr. Williams was mentioned previously in the NL. Dr. Jody Martin (NHMLAC) provides below a personal reminiscence of him.

"Remembering Austin Williams"

"As a graduate student at the University of Southwestern Louisiana, I had my first opportunity to visit the USNM / Smithsonian crustacean collections back in 1978, along with Darryl Felder, my advisor. I was in awe of the collection itself, and was looking forward to seeing it. But in truth I was actually a bit

fearful of meeting some of the legends of carcinology who worked there. Among them was Austin Williams, whose book on the decapods of the Carolinas was something of a bible to me. How would such a revered worker react to the naive questions of a beginning student? How would he view an interruption of his research time? I vowed to keep a low profile, and to speak only when spoken to. My fears were unwarranted. Austin immediately welcomed us into his lab, canceled meetings that he had scheduled for the next several days, asked about our research and collection needs, showed us projects he was working on at the time, and in general did everything possible to make us feel at home. I returned to the Smithsonian often during the course of my graduate career, as a student at USL and later as a student at Florida State, and coffee with Austin was always one of the highlights. His collegial manner and relaxed style made our research time more productive, and our visits a delight. We would discuss at length the problems of the world, the future of the USNM collections, the systematics of decapods, and anything else that was on our minds. He was always interested, always enthusiastic, always willing to share his seemingly infinite knowledge of decapods. I suppose that the phrase "a gentleman and a scholar" is overused in our society, and employed sometimes when the fit is not perfect. In his case, it was; he was always a perfect gentleman, always a first rate scientist, always helpful, always willing to put your needs before his own. Austin left not only a legacy of beautiful work on crustacean systematics, but the indelible message that kindness and scientific rigor are not mutually exclusive.

He will be missed by all who knew him."

Joel W. Martin, Curator of Crustacea
Research & Collections Branch
Natural History Museum of Los Angeles
County



CALL FOR NOMINATIONS

With an eye to election of officers for the year 2000-2001 we call for interested parties to submit names of potential candidates (either their own or those of others). I hope that any members who have not had the chance to (or been in a position to) serve as a SCAMIT officer in the past will consider serving now. In most elections the incumbent runs unopposed. This makes us look uncomfortably totalitarian! We would much prefer that there were a variety of names on the ballot vying for positions as officers. Where is the “throw the rascals out” mentality that seems embodied in many governmental elections? Perhaps the difference is that SCAMIT officers serve as volunteers in service to the membership, and not in salaried positions within the organization. In any case, competition can only benefit us all. Please submit nominations for the offices of President, Vice-President, Secretary, or Treasurer to any of the present officers. Nominees need to provide a brief (one paragraph) statement regarding who they are, and their qualifications, for inclusion with the ballots to be distributed in March. Nominations can also be accepted at meetings from those in attendance.

NEW CONTROVERSY

Well, actually, this is not a new controversy, rather an existing one strongly rekindled by a recent paper (Pleijel 1999) in which use of hierarchical structure is avoided, each taxon is treated as an individual entity, and Linnean binomens are dispensed with. This is an outgrowth of the de Queiroz call (issued a decade ago) for abandonment of the Linnean system in favor of a cladistic system reflecting only evolutionary relationships. While most previous papers dealing with this conceptual change in taxonomic method have addressed the theoretical underpinnings and the differences between the current system and the “ideal” cladistic system, Dr. Pleijel’s paper was a concrete example of the result, and dealt with

a “species” level revision of the hesionids which have been assigned to the taxon *Heteropodarke*. The debate is raging on the Taxacom List server, and those who are interested in hearing the arguments both pro and con for this approach might want to log on and monitor or even join the fray. Things get a bit heated at times, and personalities are not always excluded when deeply held personal opinions are dismissed, denigrated or ridiculed. Interested parties can find this cauldron of steaming hot controversy by subscribing to TAXACOM (the archives cannot be browsed by non-subscribers). Indicate your interest in subscribing (no charge) by e-mailing them at LISTSERV@USOBI.ORG and stating in the body of the message SUBSCRIBE TAXACOM. Go to the archives for February and January 2000 to see what has been said on the topic “Farewell to Species”. Thanks to Tom Parker (CSDLAC) for pointing out this interesting exchange.

NEW BOOKS

An announcement was noted on the Annelida Listserv on the availability of a new book of interest to SCAMIT members. The announcement was posted by one of the authors, Dr. Pat Hutchings, of the book - Polychaetes and Allies. She indicated that the book was now in the printing process and that prepublication purchase was possible. The book, volume 4a of the CSIRO Fauna of Australia Series, deals with polychaetes, sipunculans, echiuroids, pogonophores, and myzostomids.

Publication is expected in March of this year. The prepublication discount price is U.S. \$90. This rises to \$120 after publication. CSIRO has a website where additional information is available and orders can be placed:

<http://www.publish.csiro.au/poly>



A somewhat more ambitious project is Helmut Debelius' Crustacea - Guide of the World, published by IKAN – Unterwasserarchiv, Frankfurt. A book of 321 pages doesn't have a snowball's chance of actually describing [even briefly] the crustaceans of the world. The present volume, in that same length, concentrates on the decapods while also covering euphausiids, stomatopods, amphipods, isopods, cirripeds, mysids, and copepods. The title is appropriate in that the coverage is not limited to any particular geographic region, but coverage is incomplete for all regions in consequence. Over 1000 color photos, mostly in situ, are provided by the author. Remarks from those that have seen the volume are enthusiastic. The price is U.S. \$45, or DM 70.

The volume is available from the author at IKANUW@aol.com. Other e-mail distributor contacts are:

EUROPE: conchbooks@conchbooks.de
(Klaus Groh)

USA: fishid@leading.net (New World Publications)

AUSTRALIA: oceans@netspace.net.au (Peter Stone)

JAPAN: nexus@abox.so-net.ne.jp (Junko Maruoka)

Notice and first impressions of the book were posted to the CrustL list server by Niel Bruce and Peter Wirtz. Most of the above comments are distilled from their notices.

NEW LITERATURE

The most recent issue of the Proceedings of the Biological Society of Washington had several papers of interest or concern to local taxonomists. Hauswaldt & Pearson (1999) describe a local diving-depth anemone which has been known for some time as *Tealia* (and later *Urticina*) sp A in several programs. It is fitting that this has now been given the patronymic *mcpeaki* in honor of Ron McPeak, who has contributed greatly over the years to our knowledge of the kelp forest community

in general, and its anthozoans in particular. The new species is most similar to *U. lofotensis*, but differs in the color pattern of the tentacles and oral disk.

Deeper water anthozoans from off our shores were treated by White et al (1999). One of these, *Anthosactis nomados* is very similar in habitus to a more shallow water anemone taken off central California (the 'brown tent anemone'). The later, however, was typically taken on rocks rather than on biological substrates. Mollusk shells, particularly those of the scaphopod *Fissidentalium actiniophorum* are the attachments for *A. nomados*, which appears to have a symbiotic relationship with the mollusk. Both the scaphopod and the anemone are creatures of the abyssal plain, while our 'brown tent anemone' is found on the outer continental shelf and the upper fringes of the continental slope. They are perhaps congeneric, but that remains to be proven. Hopefully John Ljubenkov will find the time to compare specimens of the shallow water species with this description of *A. nomados*. Another deep water mollusk-associated anemone, *Monactis vestita*, was also discussed by the authors.

Mori (1999) reconsiders the caprellid amphipod genus *Metacaprella* during the course of description of a new species from Japan, *Caprella kuroshio*. He concludes that the abdominal appendage characters which were used as autapomorphies for the genus are not sufficient to separate it from other *Caprella*. In consequence he rejects use of the genus *Metacaprella*, treating its member species as belonging in *Caprella*. His evidence is considerable, and his argument persuasive. We will institute this change in edition 4 of the SCAMIT Taxonomic Listing. A few specimens of 'Metacaprella' have been taken in the southern California bight, but their numbers are low compared to those of the major *Caprella* species in the area. In the north, however, folding *Metacaprella* back to *Caprella* will have major database consequences.



Metacaprella kennerlyi can be exceedingly abundant in some parts of Puget Sound, southeastern Alaska, and Prince William Sound.

None of the sponge inhabiting barnacles are currently included on the SCAMIT listing, although at least one (*Membranobalanus orcutti*) is taken in the area. They are just not among the animals normally taken in a nearshore monitoring program. Still, it is nice to be aware of them and to have a little understanding of their biology and taxonomy. Van Syoc & Winther (1999) cover the group, naming a new species of *Acasta*, and providing a key to the known species from both the east and west coasts of the Americas. Since they list *Sphaciospongia confoederata* among the hosts for our local species we should keep our eyes open for *Membranobalanus orcutti* in our sampling.

Gnathiid isopods have complex life cycles and we see them in a number of different forms. Usually it is only the form of the adult male which is documented in the literature. Smit et al (1999) redescribe the adult male, but also describe the praniza larva of *G. africana* in some detail and discuss the development of species in the genus. They use a stage name unfamiliar to me (zuphea) to refer to juveniles which have passed the unsegmented praniza stage, but are still immature. Their thorough examination of these two stages of this species might prove a useful model for those of us evaluating local *Gnathia* and *Caecognathia* species to better speciate juveniles and females of species which co-occur.

For years west coast chiton workers have dealt with a series of forms, usually ascribed as varieties within one variable species, *Tonicella lineata*. Clark (1999) has further examined the situation and concluded that there are actually a complex of sibling species, two of which are described as new in the paper. Four species are included in the *T. lineata* species complex, and all have overlapping distribution with one or

more congener(s). Of the group, only *T. lineata* is not considered to occur within the southern California bight by Clark. Most of the records of 'T. lineata' from our area are probably his *T. venusta*, which can be easily separated from the other three siblings by presence of pleural flammulations (girdle barring) of lighter color within a dark girdle base color. The species also differ in scales, valve ornament, and radular characters. The author provides a useful summary character table, but does not construct a key to separate the species.

Speciation in the huge gastropod genus *Conus* provides a much more complex problem, and one which requires very careful attention to detail in character definition. The structure of the radula is highly complex in these species; modified as a venom delivery system for hunting worms, mollusks, and fish. Kohn et al (1999) attempt to put the radular house in order with a careful analysis and development of character states from radular teeth. The complexity of the system has usually led past workers to ignore it as a source of characters, concentrating instead on the shell. Among the species included in their analysis is *C. californicus*, our only local representative of the genus.

While the rapid radiation of the genus *Conus* since the Eocene has proven fascinating, older and higher level events are equally compelling. The origin of the specialized gastropod fauna now known to inhabit hydrothermal vent areas and mid-ocean spreading centers is one such example. The relative age of origin of these animals was investigated by McArthur & Koop (1999) using 28S rDNA sequence data. As is often the case when technologies are new and first cuts must be made, the results were not definitive. Nevertheless they were quite interesting and this was far from a wasted effort. Monophyly of the Neritopsina, Vetigastropoda, Neomphalina, Caenogastropoda, and Heterobranchia was supported, although Kishino & Hasegawa



testing of the significance of the monophyly results showed that several were not statistically more likely than non-monophyly results.

As to the age of the origin of the Neomphalina, results were somewhat equivocal and further investigations using both a broader sampling of taxa and longer sequences of the 28S rDNA molecule or other molecular data appear to be necessary. The Neomphalina, as a vent endemic taxon containing a number of the species restricted to vents, was used as a surrogate for the entire community in this analysis. While it did seem very likely that the group originated in the Mesozoic, other hypotheses could not be rejected. Other approaches based on the fossil record were also tried, but the record for non-mollusk endemic groups of interest (such as barnacles) is too incomplete to yield a reliable estimate of the evolutionary age of the vent biota (but also seems to point to a Mesozoic or earlier origin).

A much longer sequence was used by Wollscheid & Wägele (1999) in their examination of the phylogeny of the nudibranchs. They used complete sequences of the 18S rDNA molecule, including between 1850 and 2100 bp. Even so, only about 600 of the sites were phylogenetically informative. Over 50 mollusk taxa were included, of which 19 were nudibranchs. Representatives from other groups were included (such as cephalaspids, sacoglossans, anaspids, gymnomorphs, and pulmonates) and the trees were rooted in either the Neritopsina or Littorinidae (depending on the nature of the analysis - all taxa, or opisthobranchs only). While this analysis, along with all others, might have benefitted from a broader sampling of nudibranch taxa, these initial results are most encouraging. Bootstrap values were for the most part quite high and the analysis yielded independent molecular support for most of the morphologically based conclusions regarding major group monophyly.

Within the Doridoidea separation of the phanerobranch and cryptobranch groups were not supported based on the 15 dorids included. This tends to echo the problems mentioned last NL in a cladistic analysis of the dorids by themselves. A similar problem was found in the gymnomorphs, where the two taxa analyzed did not form a monophyletic group. I do question one of the nudibranch synapomorphies listed by the authors, that of loss of shell. This is a clearly homoplasious character which has occurred numerous times in the Opisthobranchia and in other distantly related mollusk groups as well.

Anyone who often watches marine invertebrates live will observe reproductive activity. Let's face it, it is one of the essential activities of any species. Such observations are not always written down, leaving gaps in the knowledge of the natural history of many groups. Jensen (1999) provides first records of reproductive activity in two families of shelled sacoglossan gastropods. Combined with published information on reproduction in other sacoglossan groups (and other observations by the author) these new observations allow a survey of reproductive behavior in the Sacoglossa. The range of behavior in the group is fairly broad, although all are simultaneous hermaphrodites. While reciprocal copulation is the norm, in some cases it is refused, and in others the hypodermic "quickie" allows male function without reciprocation. Injection of sperm through the body wall and into the coelom of the recipient through a hollow penial stylet makes sex considerably more casual (no particular position is necessary, there is no need for obligate reciprocation, and no behavioral preliminaries). This non-reciprocal sexual mode may be preferred in some cases as it allows the animal to escape the energetic burden of female function while allowing production of progeny. This has been seen elsewhere among invertebrates, particularly in flatworms, where two hermaphroditic individuals have been observed to duel with their penes, each seeking to hypodermically



impregnate the other while avoiding it him/herself. In the flatworm case, impregnation forces the individual into the energetically expensive female role. In the examined sacoglossans there was a broad spectrum of copulatory periods from extremely short to quite long. The author points out that long copulations, while assuring the success of simple sperm transfer methods such as ciliary transport within reproductive ducting, expose both members of the pair to increased predation and other types of risk (dislodgement, for instance) which are much less in rapid exchanges. An interesting paper.

Collin (2000) discusses another type of sexuality in gastropods, that in which the sex is environmentally determined. She considered several species of calyptraeids, a group known for protandry. Collin investigated the conditions under which sex change was initiated in members of two types of calyptraeids - those that live in stacks, and those that live singly. The former was represented by *Crepidula adunca* which lives in pair stacks, female larger and below, with the younger, smaller male holding onto the dorsal side of her shell. Once such a pair is established the male sex-change is probably suppressed (although the present data are not sufficient to show this). A second male may also become attached to the shell of the female, forming a stable three animal stack. Over 3/4 of the female *C. adunca* were in stacks, while nearly half the males were. This leaves a sufficient number of male individuals to undergo sex change into a female without drawing on those males already involved in reproductive stacks.

In *Crepidula lingulata* (*Crepidatella dorsata* in current SCAMIT parlance) only 2% of the individuals were involved in female/male stacks. In the experiment males kept with females were significantly less likely to change sex than those kept alone or with other males. In some of the experiments both test males changed sex, showing the hormonal system

involved does not always lead to optimal reproductive fitness in a given situation. Think how severe adolescent angst must be for young calyptraeids! The author also made a series of observations on the development of the species, one brooding eggs to young crawl-out (*C. adunca*) while the other releases swimming veligers (*C. dorsata*).

The end of pelagic existence and the adoption of life on the bottom for the moon snail *Polinices lewisii* (now *Euspira lewisii*) are examined by Pedersen & Page (2000). It is astonishing how like the benthonic juvenile the last veliger is; the only obvious external difference is the retention of the veliger lobes. Once settled the juveniles rapidly begin pursuing a life style similar to that of the adults, although more limited to the sediment surface. One of the more interesting observations was that tiny juvenile moonsnails feed not only on tiny bivalves, but also on tiny ostracods. Perhaps this is just confusion or perhaps they like the variety. If it is confusion, it must be very disconcerting to bore through a shell only to get kicked in the chops! The authors provide a photograph of a snail-bored ostracod test in the paper.

For a long time it has been recognized by permitting agencies that one of the more obvious impacts of organic discharge is bottom-water and/or pore-water oxygen depletion from COD, or COD and BOD combined. It is instructive to compare our local experience with this phenomenon with the large scale anoxic/hypoxic occurrences in the New York Bight, the Gulf Coast, and now the Pomeranian Bay in the Southern Baltic Sea (Powilleit & Kube 1999). The authors document both the original event, recording its severity at a range of sites, and the course of recovery of the macrobenthos over time.



RESOLVED: NO CONFLICT

A group of taxonomists involved in the identification of the B'98 benthic samples met at SCCWRP on the 24th of January to resolve discrepancies between the primary and secondary taxonomists. The discrepancies had come to light in comparison of the identifications provided for the same sample by primary and secondary taxonomists during Quality Control sample reanalysis. Thirty-six samples were exchanged between the laboratories involved, but not every lab got samples from every other lab. Effort in the QC reanalysis was as uneven (and in the same proportion) as the initial sample distribution; 10% of the samples from each laboratory were reidentified.

After the secondary taxonomists had gone through each sample and independently arrived at identities and counts for the organisms contained, they were sent a copy of the results as submitted by the primary taxonomic lab. The secondary taxonomists then prepared a Discrepancy Report listing the taxa where primary and secondary nomenclature was not the same. Armed with this document we gathered to reexamine the samples (where necessary) and to attempt to explain the discrepancies. Although the results may be applied to the original dataset by the originating agency (i.e. - detected errors can be corrected) this will not be done in the overall dataset. The purpose of this exercise is generation of metadata that will allow others (and ourselves) to determine the accuracy of the taxonomic processing.

Before we began Dave Montagne gave us a presentation of the nature of the process and a summarization of the results of its application to the SCBPP data in 1994. Most of the participants had been involved in the process in 1994 but we needed a refresher course before starting the process again. The SCCWRP Benthic Scientist in charge of the analysis of the B'98 data was in attendance, Dr. Ananda

Ranasinghe. For many of us it was our first meeting with him. He got a chance to observe the process in action during the day. After our introductory comments we broke into small groups centered on the 3 dissecting and two compound scopes set up for the exercise. It was chaos, but an organized chaos, which yielded considerable progress during the day. Several participants had served on several teams, and so had a number of exchange samples with which they were involved. Consequently, during part of the day we were waiting our turn for either a particular colleague, or a microscope to be available. This melee of small group formation and dissolution continued the rest of the day, and a working lunch was brought in so that it could continue uninterrupted. Even so we were not able to resolve all issues at this first meeting.

A second meeting was held on 9 February and a series of additional conflicts were addressed. A few of the first meeting participants were not able to attend the second meeting, but work continued without them. By the end of the day it was apparent that an additional meeting of the entire group would not be necessary. Instead, one or two smaller meetings would be held between much smaller groups of participants to resolve remaining discrepancies in shared samples.

With continued effort on the part of the taxonomists involved we should be able to complete this portion of the project soon, making it possible to submit final versions of the benthic data for review by the Synoptic Review Committee. The review itself will require several meetings and should yield as completely standardized a dataset as is possible for a project with so many participating groups. Once this portion of the process is completed, the QC manager will examine the Discrepancy Resolution Reports and characterize the nature and extent of error in the data. Some of the issues will not be interpretable, however, until the synoptic data review is completed. During that effort some data which has been treated



unevenly by the participating groups may require 'drop back' modification to a higher taxonomic level within the combined dataset. Disagreements in lower level taxonomy within these groups then become moot.

INTERNATIONAL CONFERENCES

All three of the following notices were originally posted to the CrustL listserver. They are reprinted here although the orthography has been modified in some cases and some information not considered essential was deleted.

Second Announcement - Xth International Colloquium on Amphipoda, Heraklion, Crete, Greece, April 16-21, 2000.

Although the pre-registration and abstract deadline for the upcoming Xth International Colloquium on Amphipoda in Crete, Greece (16-21 April 2000) has passed, registrations will continue to be accepted. For additional information on the meeting including author instructions, excursion information, etc. please visit the Institute of Marine Biology of Crete website

http://www.imbc.gr/whats_new/index.html

Please contact either Wanda Plaiti (wanda@imbc.gr) or Adam Baldinger (abaldinger@oeb.harvard.edu) with questions. Also, please note the Amphipod Homepage

<http://www.odu.edu/~jrh100f/amphome/message.htm>

First Announcement - Fifth International Crustacean Congress and 'Summer' 2001 meeting of The Crustacean Society, 9-13 July 2001. University of Melbourne. The website is now open for registration of expressions of interest.

<http://www.unihouse.org.au/ICC5/index.htm>

For those of you with limited access to the web here is a summary of the contents:

A week has been scheduled for the meeting, enough time to share ideas, meet colleagues and explore parts of Melbourne. The Congress will incorporate the annual 'Summer' meeting of The Crustacean Society. I urge you to think early about coming to Australia. It may be on the other side of the Earth from you and although flights are frequent many cheap fares go early.

Between now and July 2001 the Congress website will be updated at frequent intervals. I invite you to register an interest in the congress.

Program - The committee already has offers of special symposia but more are possible. These have been mooted so far:

The Third Crustacean Larval Conference (convenor Paul Clark, pfc@nhm.ac.uk)

Symposium on the systematics and biology of the Anomura (Rafael Lemaitre, lemaitre.rafael@nsmh.si.edu, and Christopher C. Tudge, tudge.christopher@nsmh.si.edu - convenors)

Copepods as colonizers and invaders (convenor Geoff Boxshall, g.boxshall@nhm.ac.uk)

Ecotoxicology of crustaceans (convenor Malcolm Jones, M.Jones@plymouth.ac.uk)

The impact of fishing on communities (convenor Les Watling, watling@maine.maine.edu)

Burrowing crustaceans (convenor Fiona Bird, f.bird@zoo.latrobe.edu.au)

Biology of crustacean symbioses (convenor Peter Castro, pcastro@csupomona.edu)

The unity of the Peracarida (convenor Buz Wilson, buzw@amsg.austmus.gov.au)

Molecular systematics and taxonomy (convenor Chris Austin, cherax@deakin.edu.au)



The biology and management of exploited crustaceans (convenors Brad Mitchell and Andrew Levings, bradm@deakin.edu.au & ahl@deakin.edu.au)

Congress website (consult the website for information on tours and accomodations): <http://www.unihouse.org.au/ICC5/index.htm> (for hyperlink see page 9).

Fee - A \$400 (about US\$260) will include a reception, book of abstracts, congress proceedings, plus tea and coffee and lunches during the sessions. Students 1/3 off.

First Announcement -Towards the New Ostracodology in the 21st Century. 14th International Symposium on Ostracoda, 1-4 August, 2001, Shizuoka University, Japan. The organising committee is planning the following two sessions:

1. Earth Environments and Dynamics of Ostracoda

This theme will concentrate upon evaluating the potential of applying Ostracoda to study of long- and short-term environmental changes caused by either geological events or human activities.

2. Evolution and Diversity of Ostracoda

This theme will focus on the latest developments in reconstructing phylogeny, in understanding the origin of Ostracoda and the relationship of Ostracoda to other crustaceans, and in the taxonomy, ontogeny and ecology of Ostracoda.

Participants are invited to present scientific papers in the sessions either as oral presentations or posters. Those wishing to present papers must submit an abstract on or before December 10, 2000. Some renowned researchers (geochemists, micropaleontologists, and crustacean researchers) will be invited as keynote speakers. The contributions of the sessions

will be edited and published in international journals in the geological and biological sciences.

Six field excursions are in the planning:

A) Paleozoic Ostracoda in China

B) Mesozoic freshwater Ostracoda in Korea

C) Recent and Pleistocene subtropical Ostracoda in Okinawa, Japan

D) Recent and Pleistocene temperate/boreal Ostracoda in Hokuriku (Japan Sea coast)

E) Miocene subtropical/temperate Ostracoda in Tochigi Prefecture (Central Japan)

F) Boreal marine and freshwater Ostracoda in Hokkaido, Japan

The official language of the meeting will be English. Suggestions for workshops are most welcome. We are also planning a cultural programme and sight-seeing tour for accompanying persons. The organising committee will make accommodation arrangements for the participants in a private high school dormitory near Shizuoka University and in various hotels in Shizuoka City.

Key dates:

* September, 2000 The Second Circular (registration fee for the meeting and field excursions, accommodation guide, format for the abstract)

* December 10, 2000 Deadline for the abstract

* March, 2001 Deadline of application of the meeting/excursions and payment of registration/deposits fees

* May, 2001 The Third Circular (programme, list of participants)



To register your interest in attending this meeting please reply, giving your name, address, phone/fax and e-mail, to the following address as soon as possible:

By Post to: ISO2001

Department of Biology and Geosciences
Shizuoka University, Oya 836, Shizuoka 422-8529, Japan

Fax: (81) 54 238 0491 [81 is the Japan country code]

E-mail: iso2001@se-geomail.sci.shizuoka.ac.jp

HISTORY IN THE TELLING

Over the past 2+ years SCAMIT Newsletter readers have been treated to a very personal commentary on the life and professional experiences of Dr. Donald J. Reish. As he was (and is) mentor, major professor, and advisor to many SCAMIT members, this history is of special interest. As it covers the period of the development and blossoming of environmental consciousness in the U. S., and the changes in public policy, research and funding priorities, and work opportunities for marine biologists which resulted, it is also of general interest. The first installment came our way in October 1997 in NL 16(6), and the following one in October 1999 in NL 18(6). The series resumes below.

My Life as A Biologist

By Dr. Donald J. Reish

Chapter 17: Research Grants and Major Contracts

I have already written about my first research grant from the U.S. Public Health Service studying the relationship between polychaetes and pollution. This grant had a significant influence on my professional life. I have no idea of how many publications, invited presentations both domestic and foreign, and consulting jobs resulted from my 5 year study at SC.

Just before joining the faculty at CSULB, the City of Long Beach began to develop the Alamitos Bay Marina by dredging. [Interestingly, if the City had attempted to start this development today, it would not have come to pass since they dredged wetlands.] I saw this development as a golden opportunity to study succession in the subtidal environment as well as on jetties and boat floats. I submitted a proposal to NSF my first semester at CSULB which was funded (3 years, \$21,000 total). Al Stone, my first graduate student, helped me on this project plus some undergraduate students. I also included Marina del Rey, and the two marinas in Ventura County. I found that there was really no succession in the subtidal environment. Settlement dependent upon what animals were reproducing at the time of dredging [in some instances, we sampled 2 weeks after the area was dredged]. There was a slight indication of succession on boat floats; however, again it depended on what organisms were reproducing at the time. Certainly, it was not the elaborate succession scheme that Scheer has published for Newport Bay. I was visiting Ventura City Marina and I met the contractor and he asked me what to do about the extensive bloom of algae [*Ulva* and *Enteromorpha*]. I said nothing; it will be gone in 2 months. I saw him 2 months later and the green algae was gone. He said he thought that I had been crazy to suggest nothing! Many publications resulted from this three year study plus consulting jobs at Ventura City Marina and Marina del Rey.

The next grant was from NIH to study the effect of environmental variables on polychaetes used as indicators of pollution. This was the study that resulted in my purchasing 1000 Erlenmeyer flasks. Jack Anderson and Tom Richards plus some undergraduate students helped me on this 3 year study (\$35,000). The technique of controlling the dissolved oxygen in the flask was the key to this research. I had gotten the idea from Bill Hildemann from SC days



(actually he did the work as a grad student at CalTech). Many graduate students used this technique including Tom Richards who used it in his PhD work at Maine.

Following the appearance of Rachael Carson's book "Silent Spring" in the early 1960s, there was considerable concern about the effect of DDT on organisms including those in the marine environment. U.S. Fish and Wildlife Service requested Ken Maxwell and I to submit a proposal. We did; we studied the movement of DDT through a laboratory food chain—Enteromorpha to Neanthes to a fish (first an opaleye later a mollie). We had uptake in the algae which we fed the worm which also took DDT up, but we had difficulty with the fish. It was difficult to feed the fish a sufficient number of worms. Jack Word and Wayne Davis helped me on the biological phase of this research. Very little of this work resulted in publication, but I learned the difficulty of conducting a laboratory food chain. I have never attempted it again, but Joe LeMay did going from worm to fish and using radioactive tracers. He was successful.

I had written earlier about the influence of C.M. Tarzwell had on my life. He became the first director of the newly established EPA lab in Rhode Island (He had offered me a job there, but I never applied.). Tarzy asked me to write a proposal to develop culture techniques for many species of polychaetes which could be used in marine toxicity tests. He funded me for 3.5 years and this was one of my largest grants (\$250,000). Many graduate students worked on this grant. I assigned each student to a polychaete, and it was their responsibility to learn how to culture them and the results constituted their masters degree research. Kathy King, *Boccardia proboscidea*; Stan Rice, *Polydora ligni*; Mark Rossi, *Halosydna johnsoni*; John Shisko, *Dexiospira brasiliensis*; Doug Morgan, *Cirriformia spirobrancha* and *C. luxuriosa*; Scott Carr came a little later in the study and he conducted toxicity tests with *Ctenodrilus serratus* and *Dinophilus*

gyrociliatus. Mike Martin coordinated the efforts and conducted many toxicity tests with many of these species of polychaetes. EPA published the results of this study in their publication series. The results were also presented orally by these students at the Hartman memorial symposium.

Environment Canada contacted me to study the long term effects of mine tailings on survival and reproduction on four species of polychaetes (*Capitella*, *Neanthes*, *Ctenodrilus*, *Ophryotrocha*) at 15-20 C. Canada was considering discharging mine wastes into an Arctic Sea body of water. With my previous Arctic experience I suggested that they drain one of the thousands of Arctic slope lakes and empty the wastes into the dry bed. The permafrost would prevent the movement of the wastes. The Canadians ultimately did this but not before the study was done. Tom Gerlinger helped me on this project and some of the data was the basis for his masters degree thesis. We published some of the work.

Dorothy Soule established Harbor Projects at SC and she contacted me for assistance in the biological aspects of LA-LB Harbor. They made benthic and monthly test panel collections. Most of the sorting and identification was done in my lab. I do not know how many people worked on this project over the next 5 years. I will not attempt to name them. My daughter Lisa began while still in high school and she later became the coordinator of the personnel. She trained the people in the identification of the invertebrates. I do not know the total amount of funds involved, but it must have been between \$100,000 and 200,000.

Dredging and disposal of marine sediments became an important environmental issue in the early 1970s. The LA district Army Corps (via Russ Bellmer) wrote several contracts with me including the preparation of a toxicity manual for them. This was a major effort (over \$300,000) and Joe LeMay was my right hand



man over the 3-4 year study. We conducted toxicity tests (metals, DDT, PCBs, hydrocarbons) on 20 species of animals (7 crustaceans, 5 polychaetes, 4 bivalves, 4 fish). In general, crustaceans were usually the most sensitive with fish and pelecypods being the most tolerant. A manual was prepared and the results of some of this work was published.

Jack Anderson, Murray Dailey and I received a contract from MMS to write a book summarizing the ecology of the Southern California Bight. Fred Piltz, a former student of mine, was the project manager for MMS. The 3 of us served as editors and we wrote a 1000 page book published by the Univ. of CA press with the help of over 20 contributors. Not many books of this type have been written and I think that it will be a source of valuable information for many years or decades.

The last major contract I had was with Jack Anderson (then at SCCWRP) to study the effect of produced water from offshore platforms on 5 species (echinoderm fertilization test, *Mysidopsis*, *Neanthes*, Microtox® and fish). Ken Schiff, Steve Bay, and Andrew Jirik worked on the project. It is well to remember that one species is not the most sensitive to all toxicants; *Neanthes* was the most tolerant to produced water but was the most sensitive to the reference toxicant. Ken Schiff was the first author of the publication.

The foregoing account describes the major grants and contracts that I have received over the years. I have also received many consulting contracts too numerous to mention.

Next chapter: Some interesting consulting contracts.

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