International Ichthyoparasitology Newsletter No. 10 January 2003

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EDITORIAL

This has obviously been another busy year for ichthyoparasitologists judging from the amount of news I was sent with very little begging on my part. A record number of "Research Activities in Various Countries" reports were sent to me, with 10 countries or regions represented. A new "Where are They Now?" section has been added to the Newsletter at the request of a number readers. This section allows researchers to inform their colleagues of their new details if they have moved or changed jobs. Sadly, an "In Memoriam" section has also been included in this issue to announce the passing of Professor Boris Kuperman, a notable Russian parasitologist.

Anyone wishing to contribute to the next issue of the Newsletter (Number 11) should note that the deadline date for submission is **September 30, 2003**. My contact details are at the end of this Newsletter.

This, and future issues, will be available on David Gibson's Web Pages at:
http://www.aan18.dial.pipex.com/newsl5.htm

ANNOUNCEMENTS

The Sixth International Symposium on Fish Parasites will be hosted by the University of the Free State in Bloemfontein, South Africa from **22 – 26 September, 2003.**

The International Steering Committee for the Sixth International Symposium on Fish Parasites selected this venue based on a bid submitted by the Aquatic Parasitology Research Group of the Department of Zoology and Entomology of the Free State University after the Aberdeen Group withdrew their offer to host the meeting in 2003.

The conference will be hosted on the Bloemfontein campus of the University of the Free State. Bloemfontein is a friendly small city and the capital of the Free State. It is also the judicial capital of South Africa and the seat of the Appeal Court. Bloemfontein Airport has daily flights in and out to Johannesburg and Cape Town as well as to other major centres.

The city is well known for its hospitality and safety. The climate during late September will be mild with the possibility of isolated thunderstorms, which mostly last only for an hour or two. The organising committee is committed to stage an international symposium of a high standard, but at an affordable cost in order to attract as many participants as possible, especially post graduate students.

The date of the symposium, 22 – 26 September 2003, was selected to coincide with the university recess, so that university residence accommodation could be made available for delegates if they chose to make use of it. The cost will be around $15-20 US per person per day and will include breakfast. There are numerous guesthouses as well as four hotels within walking distance from the campus. Information about the cost of this accommodation will be included in the circular, which will go out in February 2003.

The organising committee of the Sixth International Symposium on Fish Parasites requests that anyone interested in attending contact us by e-mail so that we can place you on our mailing list. We also request that you pass this announcement on to anyone that you know who may be interested in attending.

We are looking forward to receiving you in Bloemfontein.

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You can also contact Prof Linda Basson BASSONL.SCI@MAIL.UOVS.AC.ZA or Dr Liesl Van As VANASLL@SCI.UOVS.AC.ZA

FISHDISEASE.NET

http://www.fishdisease.net/

Fishdisease.net is a new not-for-profit website aimed at increasing communication between those working in the disparate fields that make up aquatic animal health research. The site allows users to add and edit their own profiles and to add links, images, conference notices, job postings, lab protocols and other documents to the database to be freely shared with others. The site also includes news feeds relevant to fish research, drawn from all over the web and updated daily. If you were a Parafish user, you have already had your profile transferred to fishdisease.net, which will replace Parafish. Fishdisease.net will also have an email listserv available shortly. Users may be particularly interested in the image collection on fishdisease.net, which is currently over 500 images of parasites and pathological conditions in fish and invertebrates, all freely available for use in teaching and research. The images are directly connected to fishbase.org, allowing you to pull up host information for a given image at the click of a button.

If you have questions or you wish to contribute to fishdisease.net, please email dove@anicca.net. Fishdisease.net can be found at http://www.fishdisease.net/

AquaVetMed

Information & Resourse Database

For Veterinarians and related health professionals involved in Aquaculture, Aquatic Animal Health and Seafood Safety

Currently the Aquaculture and Seafood Advisory Committee (ASAC) of the American Veterinary Medical Association is considering the best mechanisms to provide access to professional aquatic animal veterinary and health and seafood safety information and other resources to support veterinary professionals, their clients and the industries. If you, your institution, or company would like to be listed in a database of Aquatic Veterinary Medical Professionals or receive periodic e-mail information please contact Dr David Scarfe of the American Veterinary Medical Association DScarfe@avma.org for further information or an application form.

ACTA ICHTHYOLOGICA ET PISCATORIA

Dr Wojciech Piasecki recently became Editor-in-Chief of Acta Ichthyologica et Piscatoria. He would like to invite fellow ichthyoparasitologists to submit their manuscripts to this periodical. The journal is 32 years old, publishes papers of fish biology, physiology, systematics, diseases, parasites, aquaculture, fisheries, and seafood technology. The journal has an international Editorial Advisory Board and the manuscripts are reviewed by two international referees. The Journal webpage is not operational yet but the web address will be www.aiep.pl or contact Dr Wojciech Piasecki at piasecki@fish.ar.szczecin.pl for further information.

AQUACULTURE BASED HISTOPATHOLOGY WORKSHOP

The University of Tasmania, School of Aquaculture at Launceston

This workshop consists of three modules that can be taken separately or together. These modules are described below. The workshop is designed to suit postgraduate students

and postdoctoral fellows who are interested in learning histopathology, but also as an introduction to aquatic animals for veterinarian pathologists or as a revision for experienced pathologists. Participants will be divided into smaller groups on the basis of their experience. The small group size will allow for teaching at different levels related to the experience of the participants. Participants are encouraged to bring their own slides for discussion. All prices are quoted in Australian dollars. Contact Barbara Nowak (b.nowak@utas.edu.au) for further information.

Fish Histopathology. Monday February 10 to Wednesday February 12, 2003. Fee: $600. Laboratory style (limit 12).

The two day intensive workshop will focus on histopathology of fish organs and tissues. The lecturers include Dr Judy Handlinger, Dr Barry Munday, Dr Barbara Nowak, Dr Tish Pankhurst and Dr Mark Powell. Generally, classes will be taught in small groups (approximately 4 persons in each) to accommodate the different levels of experience. As a result, participants are not required to have extensive histology background, however, experienced pathologists will also find it useful. Conference microscopes, slide projectors and computer software will help to illustrate fish histopathology. The program will include examples from a variety of fish species, both marine and freshwater. The use of histopathology in disease diagnosis and its use as a pollution biomarker will be discussed. Participants are encouraged to bring their own slides for discussion.

Crustacean Histopathology. Thursday February 14, 2003. Fee: $300. Laboratory style (limit 12).

The lecturers include Dr Danielle Johnston, Dr Steve Pyecroft and Dr Barbara Nowak. Generally, classes will be taught in small groups (approximately 4 persons in each) to accommodate the different levels of experience. As a result, participants are not required to have extensive histology background, however, experienced pathologists will also find it useful. Conference microscopes, slide projectors and computer software will help to illustrate crustacean histopathology. The program will include examples from a variety of crustacean species, focusing on penaeid shrimp. The use of histopathology in disease diagnosis and its use as a pollution biomarker will be discussed. Participants are encouraged to bring their own slides for discussion.

Molluscan Histopathology. Friday February 15, 2003. Fee: $200. Demonstration lecture style.

The one day intensive workshop will focus on **Histopathology of molluscan organs and tissues.** Dr Judith Handlinger will be the workshop leader. Generally, lectures will be used to illustrate molluscan histopathology. The program will include examples from a variety of species, focusing on the ones most important in aquaculture. The use of histopathology in disease diagnosis and its use as a pollution biomarker will be discussed. Participants are encouraged to bring their own slides for discussion.

Special rates are provided for those choosing two or more workshops

Fish, Crustacean and Molluscan Histopathology	$1,000
Fish and Crustacean Histopathology	$ 800
Fish and Molluscan Histopathology	$ 700
Crustacean and Molluscan Histopathology	$ 450

ECTOPARASITES
IMMUNE RESPONSE AND VACCINE DEVELOPMENT

Friday April 11, 2003

A half-day workshop sponsored by Cooperative Research Centre for Sustainable Aquaculture of Finfish (Aquafin CRC) will be run during the Fish Vaccinology Conference to be held in Bergen, Norway, April 9 – 11, 2003. This workshop will cover recent advances in studies of fish immune response to ectoparasites and development of vaccines against external parasites. Dr Chris Prideaux, CSIRO Australia, will give a presentation on the development of tick vaccine for livestock and potential lessons for aquaculture vaccines against ectoparasites. Current research on monogenean infestations, white spot, sea lice and Amoebic Gill Disease will be covered by invited speakers. We will discuss main challenges in these research areas and ways to overcome them. We are hoping that the workshop will lead to development of future collaborations. Additional information and registration forms can be found on the website: http://veso.no/courses/fishvaccinology/workshops.html

Organisers:
Dr Barbara Nowak (University of Tasmania, Australia)
Dr Frank Nilsen (University of Bergen, Norway)

MEETING REPORTS

4th International Symposium on Aquatic Animal Health, New Orleans

provided by Barbara Nowak, b.nowak@utas.edu.au

Dr Barbara Nowak and Dr Mark Powell (School of Aquaculture, University of Tasmania) attended the 4th Symposium on Aquatic Animal Health in New Orleans, Louisiana, USA between September 2 and 6, 2002. The symposium program comprised over 300 contributions, including a number of plenary speakers providing updates in different areas of aquatic animal health. There were 11 special sessions, 25 contributed sessions and almost 100 posters. A wide range of topics was covered by leading scientists in each field, presenting the most recent data available. Four sessions were fully dedicated to parasitology. There were also some presentations discussing pathology or epidemiology of parasitic diseases. Some of the interesting talks included presentations on the life stages of the rosette agent, analysis of costia isolates and a plenary session on the transmission of myxozoan parasites – interactions between wild and cultured fish.

Dr Kristen Arkush (University of California) classified the rosette agent as a new genus and species sharing similar morphological characteristics with members of the class Mesomycetozoea, a novel group of parasites of fish, shellfish, mammals and birds, near the choanoflagellates, in the divergence between animals and fungi. Studies of rosette agent from infected fish tissue and as propagated in cell cultures have revealed previously unrecognised life stages of the parasite.

Dr Heather Callahan (North Carolina State University) presented genetic evidence for more than one species of costia. On the basis of SSU rRNA, the parasite was described as a complex of at least four groups that probably represent different species. One group consisted of hybrid striped bass and swordtail isolates, the second and third group

consisted of the rainbow trout and mirror carp isolates and the fourth group consisted of koi, goldfish, catfish and flounder isolates. This separation was geographical and related to fish movements.

Dr Jerri Bartholomew (Oregon State University) in her plenary lecture discussed transmission/dissemination of myxozoans, including transfer of naïve fish into enzootic waters (for example *Ceratomyxa shasta*) or transfer of infected fish in stocking or enhancement programs (for example *Myxobolus cerebralis*), by natural migration or as a food product.

Dr Powell gave a presentation on insights into pathophysiology and treatment of Amoebic Gill Disease in Atlantic salmon. Dr Nowak presented a paper on Amoebic Gill Disease in cultured salmonids in Australia and another one on evaluation of health risks to the farmed southern bluefin tuna. Salmonid health was an important focus of the symposium and in particular, there were special sessions on Infectious Salmon Anaemia, including development of diagnostics and vaccines, as well as epidemiology of this disease. Some papers focused on non-infectious problems in salmon farming. For example, cataract prevention in Atlantic salmon by incorporating histidine in the diet and avoiding osmotic shocks during culture was discussed. The life cycle and toxicity of *Pfiesteria* sp were questioned in three papers presented in the session on toxicology. Other interesting information presented included research on prions in fish that suggested that it is highly unlikely that fish would contract transmissible spongiform encephalopathy and therefore should not pose a potential food safety risk to humans.

ICOPA X

provided by David Gibson, dig@nhm.ac.uk

ICOPA took place between August 4th and 9th at the Vancouver Convention and Exhibition Centre in Canada. There was potentially a lot to interest fish parasitologists, but unfortunately attendance was down, there were numerous 'no shows' and the fact that there were up to 16 concurrent sessions meant that, if one had interests in other areas, actually getting to attend relevant sessions was not easy. Of interest to fish parasitologists were five sessions entitled *Ichthyoparasitology*, two sessions on Ectoparasites, a symposium on *Parasites as Indicators in Aquatic Biology* plus sessions on *Ecology*, *Wildlife Parasitology and Parasitological Surveys* which contained material of relevance. In addition, Dave Marcogliese's 'stickleback club' had a workshop (see below) on the *Biodiversity of Stickleback Parasites*, there was a symposium on *Advances in the Study of Parasites of Marine Mammals* which was of some interest to fish parasitologists and a small number of posters were presented in sessions on *Ecology* (2), *Ectoparasites* (2), *Food/water-borne parasites* (2) and *Ichthyoparasitology* (10). For the specialist, this type of large meeting cannot be compared with more focused symposia, such as we fish parasitologists have. There were, however, particular failings at this, not so cheap meeting, such as speakers having to find or provide a laptop for their presentation, and, important for fish

International group of fish parasitologists at the ICOPA conference dinner; Robin Overstreet (US), Tellervo Valtonen (Finland), Simonetta Mattiucci (Italy), David Gibson (UK), Claudia Santos (Brazil) and Branko Radujkoviæ (Montenegro).

parasitologists, the absence of free drinks. Nevertheless, Vancouver is a nice place to hold a meeting – with a fireworks competition in the evenings and trips to the mountains and to the aquarium to see the baby beluga whale, attendees will not have been too disappointed.

One satellite meeting worth mentioning is the ***Fourth Cestode Systematics Workshop*** organised and very well run by Janine Caira and her group at the University of Connecticut the week before ICOPA. This meeting was dominated by fish parasitologists, and, although perhaps too much time was spent discussing terminology, all attendees had a good time and likely added a kilo or two to their midriff. A good aspect of the meeting was the presence of a number of senior fish parasitologists, some of whom are not often seen at meetings these days – these included **Louis Euzet**, **Haffi Williams**, **John Mackiewicz**, **Amilcar Rego**, **Boris Kuperman** (who unfortunately passed away on the last day of ICOPA), **Juan Carvajal**, **Ron Campbell**, **Claude Alexander** and **Ian Beveridge**.

John Mackiewicz and the late Boris Kuperman

Louis Euzet fights with a lobster or vice versa!

FIRST STICKLEBACK PARASITE WORKSHOP

provided by David Marcogliese, david.marcogliese@ec.gc.ca

A workshop for the IBOY core project “Survey of Stickleback Parasites” was held in Vancouver on August 5, 2002, during the International Congress of Parasitology. This is the first time participants in the project have been able to assemble to discuss the project. Over a dozen participants from the US, Canada, Scotland, Germany, Iceland, and Iran were able to attend. In addition, the workshop attracted a number of curious visitors and a few new participants were recruited.

Being the first gathering for the project, the workshop consisted of discussion and verification of logistical details, including fish collecting and processing, specimen preparation and identification, and data formatting. Extensive discussion ensued on data management and analysis. Other topics covered include publication and authorship, deposition of voucher specimens, funding, products and product development (including web pages and a web site) and planning for future workshops.

As a result of the workshop, important activities were identified and prioritized in addition to the accumulation of stickleback parasite data and its analysis. These include the synthesis of a host-parasite checklist, a parasite bibliography for sticklebacks and a list of museum collections of stickleback parasites. In addition, the scope of the project was expanded to accept all parasitological data for sticklebacks, including those dealing only with select parasite groups. One accessory benefit from this project for the scientific

community at large is that it can provide both fish and parasite tissues from around the world for colleagues studying this widespread and important group of fishes.

8TH INTERNATIONAL CONFERENCE ON COPEPODA

provided by, Wojciech Piasecki piasecki@fish.ar.szczecin.pl

International conferences on Copepoda are organised every three years under the auspices of the World Association of Copepodologists (WAC). Crustaceans representing the subphylum Copepoda are very diversified ecologically. Even if this group has been perceived predominantly as consisting of small free-living, chiefly planktonic invertebrates, we cannot forget that they also constitute a major group of fish parasites. Therefore, for many years now, ichthyoparasitologists working on Copepoda have been attending the conferences organised by the WAC, considering them as the major event in their field.

The 8th International Conference on Copepoda was held between 21-26 July 2002 in Keelung, Taiwan. It was locally organised by the National Taiwan Ocean University and the National Museum of Marine Biology and Aquarium. The conference venue was at the beautiful campus of the National Taiwan Ocean University, located on the northern shores of Taiwan. The chairman of the Local Organising Committee, Prof. Dr **Jiang-Shiou Hwangn,** was able to recruit many sponsors, which translated into financial support for many PhD students, people from developing countries, and invited speakers.
The schedule of the conference was very tight and the symposia lasted from early morning to late evening. The program included four major symposia, two evening symposia with 40-min talks, 16 oral sessions with 20-min talks, and four 1.5-h poster sessions. Papers dealing with parasitic copepods were a minority, but there were many presentations covering both free-living and parasitic copepods and there were many papers of a general nature which were of interest to ichthyoparsitologists (development, phylogeny, molecular methods etc.)

Symposium I was dominated by ichthyoparasitologists. **Wojciech Piasecki** from Poland talked about the role of copepods in freshwater aquaculture, **Stewart Johnson** from Canada—the role of marine copepods and **James Bron** from Scotland—aspects of control of parasitic copepods. Oral Session III on “Symbiotic copepods” featured very interesting presentations by: **Dennyse Newbound**, Australia (on a biological tag of whale sharks), **Julianne Kalman**, USA (parasites as pollution indicators), James Bron (cuticular elemental signatures—for discriminating salmon louse populations) and **Argun Özak** from Turkey (aspects of *Caligus minimus* treatment). Parasitological papers were also presented during other Oral Symposia. James Bron talked about exocrine glands of *Lepeophtheirus salmonis*, **Susan Dippenaar** from South Africa presented a molecular approach to the phylogeny of seven siphonostomatoid families, and **N. Nguyen** from Denmark talked about ectoparasites of cod. Finally a feature presentation of the Evening Symposium I was a paper by **Ju-shey Ho** entitled “Eudactylinid copepods and their fish hosts: co-evolution and opportunism”. Prof. Dr Ho, as a member of the International Organising Committee, extensively contributed to the success of this conference by his involvement in its organisation.

Two poster sessions on symbiotic copepods gathered 13 posters, mostly on parasites of fishes. The presenting authors were: **S. Ohtsuka** (ergasilids in plankton), **S. Okabe** (copepod parasites of a puffer fish), **I.-H. Kim** (poecilostomatoid associates of bivalves, Korea), **D. Tang** (parasitic copepods of marine teleosts, Australia), **S. Gómez** (life cycle of *Lepeophtheirus simplex*), **N. Lopez** (parasitic copepods fishes, Philippines), **H. El-Rashidy** (antennae in Ergasilidae), **S. Urawa** (*Neoergasilus* in Japan), **A. Ingram**

(antennae in *Anthosoma crassum*), **A. Avenant-Oldewage** (comments on life cycle of *Lamproglena clariae*)(*Lamproglena* and *Lernaea* as environmental indicators), **R. Castro-Romero** (new siphonostome species and genus) and K. Nagasawa (sea lice in Japan—a review).

The conference was exceptionally well organised and, I myself, really enjoyed attending this event. I would like to take this opportunity thank the Organising Committee and especially Professors: Dr Jiang-Shiu Hwang of Taiwan and Dr Ju-shey Ho of the USA for sponsoring my attendance as an invited speaker. The conference gathered scientists from 49 countries. The proceedings will be published in Zoological Studies.

UPDATES

HOMSIR

A multidisciplinary approach using genetic markers and biological tags in horse mackerel (*Trachurus trachurus*) stock structure analysis

This project, funded by the EU Commission within the 5th Framework Programme, Quality of Life and Management of Living Resources (Key Action 5: Sustainable agriculture, fisheries and forestry), was described in the last Newsletter. Funding for HOMSIR finishes at the end of this year, but we have negotiated an extension for six months to allow us to write up the final report and prepare publications. The following brief summary will remind readers of the objectives and gives some preliminary results.

The overall objective of HOMSIR is the biological stock identification of the horse mackerel (*Trachurus trachurus*) throughout its entire range, from the North-east Atlantic to the Mediterranean Sea. This goal will be achieved integrating both established and innovative approaches such as genetic markers, other biological tags (morphometry, parasites), tagging experiments and life history traits (growth, reproduction and distribution). Partners involved in the use of parasites as biological tags are: **Ken MacKenzie** and **Neil Campbell** (Department of Zoology, The University of Aberdeen, Aberdeen, Scotland); **Simonetta Mattiucci** (Institute of Parasitology, University of Rome "La Sapienza", Rome, Italy); and **Paula Ramos** and **Ana Pereira** (IPIMAR, Lisbon, Portugal).

Thirty-four species and six higher taxa of parasites, including seven new host records, have been recorded from the horse mackerel examined to date. For a recent update on the project, see : Campbell, N., MacKenzie, K., Mattiucci, S., Ramos, P., Pereira, A. and Abaunza, P. (2002). Parasites as biological tags in a population study of horse mackerel *Trachurus trachurus*. *Proceedings of the 10th International Congress of Parasitology – ICOPA X. Symposia, Workshops and Contributed Papers, Vancouver (Canada), August 4-9, 2002, 217-222.* Monduzzi Editore, International Proceedings Division, Bologona, Italy.

For more information about HOMSIR, visit our website at www.homsir.com

CURRENT RESEARCH ACTIVITIES IN VARIOUS COUNTRIES

ARGENTINA

provided by Dr Gustavo Viozzi, gviozzi@crub.uncoma.edu.ar

Laboratorio de Parasitologia y Cátedra de Invertebrados A (no Arthropoda)
Centro Regional Bariloche, Universidad Nacional del Comahue
Quintral 1250, (8400) Bariloche, Argentina

Our research group is working on the biology of parasites of many different aquatic organisms including fish. Research interests include taxonomy, diversity, life-cycles, experimental and field studies and population/community dynamics. The laboratory is headed by the Director **Dr. Liliana Semenas** (lsemenas@crub.uncoma.edu.ar), whose research includes diphyllobothriosis in Patagonian freshwater fishes: Risk of transmission – Human cases. Ad hornorem assistant **Lic. Ana Kreiter** (fliamilleron@infovia.com.ar) is also examining diphyllobothriosis in Patagonian freshwater fishes. University Teaching Assistant **Prof. Norma Brugni** (nbrugni@hotmail.com) is investigating the biology of nematode parasites of fishes. Postdoctoral junior researcher **Dr. Gustavo Viozzi** (gviozzi@bariloche.com.ar) is interested in the diversity of Patagonian monogeneans.

Doctoral students **Lic. Verónica Flores** (vflores@crub.uncoma.edu.ar) and **Lic. Carlos Rauque** (crauque@crub.uncoma.edu.ar) are investigating larval stages in molluscs and life-cycles of Patagonian Acanthocephala, respectively.

Photo: metacercariae of *Notocotylus* sp. encysted on the shell of *Biomphalaria peregrina*

AUSTRALIA

provided by Ian Whittington, whittington.ian@saugov.sa.gov.au

After organizing the *4th International Symposium on Monogenea* (ISM4) held in Brisbane in July 2001, the Monogenean Research Laboratory (MRL) moved from The University of Queensland in Brisbane. As of late December 2001, the MRL is based in South Australia and personnel are to be found at 2 prestigious research institutions in Adelaide. **Ian Whittington** is a Senior Research Scientist at The South Australian Museum (SAMA), which also houses the *Australian Helminthological Collection* for which Ian has nominal responsibility. SAMA has formidable research strengths and there is scope for much fruitful future collaboration, especially with the Evolutionary Biology Unit. Ian is also cross appointed with the Department of Environmental Biology (DEB) at The University of Adelaide, a vibrant academic unit with strengths in physiology, ecology and systematics. A healthy focus on marine biology and ecology, biodiversity, systematics and evolutionary biology means that the research programs of the MRL (see below) integrate well in this new environment. SAMA and DEB are only a 1-minute walk apart which further strengthens the link between Museum and University. The MRL currently comprises: **Clinton Chambers**, **Leslie Chisholm**, **Ingo Ernst**, **Vanessa Glennon** and Ian

Whittington. 2002 has been a year of consolidation after the move of institution. Now we're settled, we seek new students to help us with our research on various aspects of the Monogenea. Our core programs are listed below.

Taxonomy, biology & ecology of capsalid monogeneans
Ian has long had interests in capsalid monogeneans from the Great Barrier Reef, other regions of Australia, more temperate waters of Europe and most recently has experience of them as disease agents in aquaculture (see below). **Marty Deveney** (now employed as Project Officer [Fish Health] with Primary Industries & Resources South Australia; deveney.marty@saugov.sa.gov.au) recently completed his PhD thesis on the taxonomy and biology of capsalids and more publications will emerge from his study. There is also a diversity of capsalids in Ian's collection that await description and a preliminary phylogenetic analysis promises some interesting times ahead, using sequence data and morphology.

Yellowtail / Kingfish Parasite Management Project
Ingo Ernst (ingo.ernst@adelaide.edu.au) leads this research initiative funded by the Australian Research Council's Linkage scheme that is also supported by 3 industry partners: Yamaha Nutreco Aquatech (Japan); Skretting Australia; South Australian Marine Finfish Farmers Association. Monogeneans have become a particularly important problem for aquaculture of Yellowtail in Japan and Kingfish in South Australia and the Mediterranean and may affect culture of *Seriola* spp. elsewhere. *Benedenia seriolae*, *Heteraxine heterocerca* and *Zeuxapta seriolae* can severely harm production and improved disease management is needed to enable efficient production and to ensure industry sustainability. Aims of this project are to develop integrated pest management strategies for monogenean infections of fish in sea-cage aquaculture. Research foci include: improved knowledge of species life-cycles; comprehensive understanding of parasite infection dynamics; strategic application of treatments; modelling parasite populations and treatment strategies; field tests. The project vision is: "*efficient, effective & environmentally aware parasite management strategies that allow competitive & sustainable production*". Clinton Chambers (clinton.chambers@adelaide.edu.au) is a Research Associate on this project. Fieldwork will be done in close cooperation with kingfish and yellowtail farmers in South Australia and Japan, respectively.

***Neobenedenia* species: attempts to sort out confusion!**
Funded by the Australian Academy of Science, Ian visited Mazatlán and La Paz in Mexico for 3 weeks in July 2002 with a view to studying the morphology, biology and genetics of *Neobenedenia* spp. In Mazatlán for 2 weeks, Ian worked with **Dr Emma Avila-Fajer** at the Unidad de Investigación en Acuiciltura y Manejo Ambiental in the Centro de Investigación en Alimentación y Desarolla (CIAD) on a *Neobenedenia* sp. from the bullseye puffer, *Sphoeroides annulatus* (Tetraodontidae). Juvenile puffers in experimental culture can be heavily infected and present an ideal worm culture for study. Many observations and collections were made and work is in progress to distil the discoveries. While at CIAD, Ian also contributed a seminar, a lecture and a practical session about Helminths and Monogenea to students attending a course entitled *Las Enfermedades de los Peces*.

In La Paz, Ian spent 2 productive days with **Roxana Bertha Inohuye Rivera** and **Juan Carlos Pérez Urbiola** at the Centro de Investigaciónes Biológicas del Noroeste (CIBNOR) touring fish culture facilities (pictured above), discussing parasite

problems (disease and identity issues) and planning research collaborations on different aspects of the *Neobenedenia* conundrum from wild and cultured hosts. A 3 day visit to the Departamento de Biología Marina at the Universidad Autónoma de Baja California Sur, La Paz for collaboration with **Maria del Carmen Gómez del Prado Rosas** on some monocotylid and capsalid parasites from nearby fishes was also productive. Ian's experiences in Mexico were highly enjoyable, very useful and all concerned are keen for collaboration to continue.

Taxonomy, biology & ecology of monocotylid monogeneans

Leslie and Ian are approximately halfway through this project funded for 2001-03 by the Australian Research Council. Every 3 months, 10 juvenile giant shovelnose rays (*Rhinobatos typus*) are collected during visits to Heron Island at the southern tip of the Great Barrier Reef. **Tavis Anderson** (now at Rutgers University, New Jersey) and **Vanessa Glennon** (University of Adelaide) have been research assistants for this project. Our aim, using a whole organism approach combining field studies and laboratory experiments, is to examine distributions of 3 species from the gills and 1 species from nasal tissue, to provide new perspectives on the relative importance of season, parasite age and mate finding that may shape parasite distributions. Allied to this project are continuing studies on: biodiversity of monogeneans from elasmobranchs, with collections from South Australia, Queensland, Tasmania, Northern Territory and also Borneo (see below); biology of monocotylids, especially egg hatching strategies; identity of problem monogeneans on elasmobranchs in public aquaria, including treatment methods; genetic studies using molecular techniques for phylogenetic and population studies.

Studies on bioadhesives secreted by monogeneans

Together with **Dr Bronwen Cribb** (University of Queensland, Brisbane, Australia), Ian continues research embracing live studies, light microscopy and electron microscopy to study the remarkable adhesives secreted by many monogeneans from anterior organs. This project, funded by the Australian Research Council, aims to characterise the various secretory bodies produced by monogeneans in different families and to determine how these bodies interact to generate instant attachment and detachment to the epidermis of their fish hosts.

Survey of metazoan parasites from elasmobranchs in Malaysian Borneo

Ian and Leslie are also part of an international team collaborating with **Professor Janine Caira** (University of Connecticut), **Dr Kirsten Jensen** (American Museum of Natural History, New York), **Dr Peter Last**, **Dr John Stevens** pictured left (CSIRO Division of Marine Research, Hobart, Tasmania) and **Dr Gavin Naylor** (Iowa State University) to survey the sharks and rays of Malaysian Borneo and their metazoan parasites. This project is funded by the National Science Foundation and involves numerous other parasitology specialists scattered across the globe. From mid-May to early July 2002, the team covered the breadth of Sarawak and much of Sabah investigating local catches at fish markets, small villages, local fishers and by cooperation with local fisheries departments. It was especially instructive for the parasitologists to tour with the fish experts (which also included **Gus Yearsley** from Hobart). Not only are there many unrecorded parasites out there, but there are also numerous new hosts! The team reassembles next year to focus on locations that were especially fruitful.

BRAZIL

provided by Claudia Santos, cpsantos@ioc.fiocruz.br

In December 2001 **Cláudia Portes Santos** left Santa Úrsula University and worked temporarily for Mackenzie University in Rio de Janeiro. During this period she participated in the ICOPA meeting in Canada. Last August she moved to the Instituto Oswaldo Cruz, Av. Brasil 4365, Manguinhos 21045-900, Rio de Janeiro. She has a full time position in the Department of Biology in a laboratory (LAPSA) dealing with ambient health, where helminths are studied in relation to the environment. In December 2001 her student, **Cristina Mogrovejo**, presented her MSc thesis "The Parasite Biology of the Commercial Fish *Auxis thazard* (Lacépède, 1800) (Osteichthyes, Perciformes, Scombridae) off Rio de Janeiro and its Relevance to Biological Oceanography". The target for this year is to compare fish from polluted and clean areas, investigating taxonomy, ultrastructure and biological markers in relation to water quality.

provided by Anna Kohn, annakohn@ioc.fiocruz.br

The Department of Helminthology of the Oswaldo Cruz Institute,FIOCRUZ, Rio de Janeiro Brazil, comprises two laboratories which study parasites of fishes. The "Laboratory of Helminth Parasites of Fishes" has published several papers on the taxonomy, ecology and ultrastructure of helminth parasites of freshwater fishes from reservoirs in Parana and Ceara State and on marine fishes from the littoral region of Rio de Janeiro State. The group in the "Laboratory of Helminth Parasites of Vertebrates" has been developing studies on the helminth fauna of either little known hosts, such as the marine fish *Trachipterus arawatae* Clark, 1881 or other hosts, mainly sharks, that have been investigated extensively for helminths along the Brazilian coast. For a full list of publications from the 2 laboratories please contact Anna Kohn.

CARIBBEAN

provided by Ernest H. (Bert) Williams, Jr., bert@rmocfis.uprm.edu [marine lab], bert@rumac.uprm.edu [campus]; Lucy Bunkley-Williams, lwilliams@stahl.uprm.edu

Fish-Parasite Cleaning

Dr Isabelle Côté, School of Biological Sciences, University of East Anglia, Norwich, UK, and her students have conducted extensive fish-parasite cleaner studies in Barbados, including the diet of Broadstripe Cleaner Gobies, cleaner-client interactions, evolution and ecology of marine cleaning symbiosis, temporal variations in use of cleaner stations, role of mucus nutritional value in cleaner preferences, variation in posing behavior, and interactions between cleaning gobies and territorial fishes.

Dr Mary Wicksten, Department of Biology, Texas A & M University, has been surveying fish cleaner shrimps all around the Caribbean. She is finding fewer and rarer ones than previously assumed (Could the recent general declines in Caribbean coral-reef diversity be impacting shrimp?).

Michael Taylor (Michael Hellberg co-author), Louisiana State University graduate student, received the Stoye Award for Best Student Oral Presentation in General Ichthyology at the American Society of Ichthyologists and Herpetologists annual meeting for the paper "Population structure in a widely distributed neotropical goby, *Elacatinus evelynae*" [a Caribbean fish-cleaner goby]. He also presented a paper on the evolution of cleaning behavior in the genus *Elacatinus* at another meeting.

Slime-blotch Disease Epizootics/Enzootics
One of **Dr Paul Bartel's** students, **Eugene E. Scerbo**, Warren-Wilson College, Ashville, North Carolina, won a First Place Award at the Collegiate Academy of the North Carolina Academy of Science (Fosters Undergraduate Research) for the presentation "Slime Blotch Disease among coral reef fish of the Bahamas." We had confirmed his diagnosis of this disease in sub-sampled fishes. We have heard of no recent outbreaks of this disease. Please send us any reports.

Isopods
Dr Paul Sikkel, Murray State University, Murray, Kentucky, returned to the Magueyes Island Marine Labs, La Parguera, PR, in June 2002 to continue his work on gnathiids of coral-reef fishes. He and his students are uncovering interesting aspects of the early life history of these parasites.

Dr Niel Bruce, in a recent popular, online article on New Zealand aegid isopods, discusses the odd case of mass attacks by an aegid isopod on Caribbean bathers. Actually, these mass attacks were by the aegid Monogram Isopod, *Rocinela signata*, on marine biologists using SCUBA gear off the Caribbean coast of Colombia. The Monogram Isopod is a common and ubiquitous parasite of Caribbean fishes. This event was documented in a nice paper published by the victims of the attack. Other reported attacks by the Monogram Isopod have involved individual specimens. It is remarkable as the only fish-parasitic isopod that considers humans a routine food item.

Bert and Lucy surveyed external fish-parasitic isopods (*Anilocra* spp.) in the U.S. and British Virgin Islands in late June 2002. The diversity and abundance seems reduced on the largely deteriorated reefs from what it was 27 years ago on our last survey of these areas.

Leeches
The "dark leech … often attached to the dorsal fin of the Caribbean reef shark" *Carcharhinus perezi* recently mentioned and illustrated online in Biological Profiles, Ichthyology, **Florida Mueseum of Natural History**, is *Stibarobdella macrothela*. We documented this leech species on the fins of this shark in a paper 8 years ago. We also know of no other leeches infecting Caribbean sharks.

External Lesions of Sharpnose Puffers
This is a follow up on the announcement of Sharpnose Puffer, *Canthigaster rostrata*, disease epizootics noted in the last Newsletter. We have not been able to find any of these external lesions in Puerto Rico. In late June 2002, we were able to examine numerous specimens of Sharpnose Puffer in the U.S. Virgin Islands (one of the sites reported) and in the British Virgin Islands, but found no externally expressed lesions. This fish, while not particularly abundant, appeared to be healthy. No more cases have come to our attention. Please send us infected Sharpnose Puffer specimens or reports of this odd disease to help us examine and explain it.

Fish Lice
A recent online **Divers Alert Network** (DAN) Diving Medicine Article "Debunking the Sea Lice Myth" informs divers that Sea Lice, are fish parasites, and do not cause itchy skin eruptions (sea bathers eruption) in swimmers in seawater in south Florida and the Caribbean. Parasites get blamed for everything! This question was resolved in a paper a few years ago. We sent some records to the authors. Unfortunately the term "sea lice,"

which should be reserved for argulids, has also been, rather sloppily, applied to caligid copepods of late.

Fungi
We have isolated a potential human pathogenic fungi from lesions of food fishes in Puerto Rico. This parasite has not previously been noted to occur in the Caribbean Region. We are attempting to establish the distribution and abundance of this pathogen.

Further information on any of the topics above can be obtained from Bert or Lucy at the e-mail addresses listed above or by mail: **Dr Ernest H. Williams, Jr.**, Department of Marine Sciences, University of Puerto Rico, P.O. Box 908, Lajas, Puerto Rico 00667-0908. **Dr Lucy Bunkley-Williams**, Department of Biology, University of Puerto Rico, P.O. Box 9012, Mayagüez, Puerto Rico 00861-9012.

DENMARK

provided by Dr Kurt Buchmann, kub@kvl.dk

Danish fish parasitology has recently expanded its web into related fish disease groups. Due to a joint grant from the Danish Agricultural and Veterinary Research Council and the Danish Ministry of Food, Agriculture and Fisheries, it has been possible to establish a research network and a research school. This creates an encouraging and inspiring atmosphere among Danish fish disease enthusiasts. The ambitious name SCOFDA (Sustainable Control of Fish Diseases in Aquaculture) has been allocated to the project. The two SCOFDA research entities are led by **Kurt Buchmann** (kub@kvl.dk) at the Royal Veterinary and Agricultural University (KVL) in Frederiksberg. Colleagues from research institutions working in the field of fish parasitology, fish immunology, fish virology, fish bacteriology and genetics are engaged in various projects in this field. Through a number of annual meetings, workshops and Ph.D. courses, members of the network are obtaining a more holistic view about fish biology. This is emphasised further by incorporation of SCOFDA into a larger Fish Biology network that can be visited at www.fishnet.dk. It is in fact possible to fetch important inspiration from only slightly related fields in fisheries science.

But back to basics. Specifically talking about parasitology, Ph.D. student **Jens Sigh** (jsi@kvl.dk) is working on a DNA-vaccine against *Ichthyophthirius multifiliis.* Ph.D. Student **Thomas Lindenstrøm** is engaged in the study of cytokine expression in fish skin during *Gyrodactylus* infections. Postdoc **Michael E. Nielsen** (men@kvl.dk) is currently involved in the description of the early development of immunity in rainbow trout. Masters student **Martin Raida** (mkr@kvl.dk) participates by describing the effects of probiotic bacteria on immunity of trout to various pathogens. In addition, in a fruitful collaboration with Scottish and Norwegian colleagues, we have had luck obtaining EU-funding to study the genetic basis for *Gyrodactylus* resistance in salmon. Researcher **Michael Dalgaard** (mbd@kvl.dk) is working hard together with Masters students **Thomas Bjerre Larsen** (tbl@kvl.dk), **Steinunn Hilma Olafsdottir** and Steen Jørndrup (sj@kvl.dk) and Ph.D. student **Carsten Nielsen** (cvn@kvl.dk) to describe the susceptibility of various salmonids to infections with different species of *Gyrodactylus*. These brave parasitologists still have ambitions to unravel the mechanisms behind host specificity in parasite-host systems (we did not put a time limit on the work). Our experienced friend and colleague **José Bresciani** (job@kvl.dk) from the Ecology Department (Zoology section) at KVL is engaged in many of the projects with great enthusiasm.

The network has also established a link to and cooperation with **Marianne Køie** (mkoie@zi.ku.dk) at the University of Copenhagen, who is seeking life cycles of marine myxosporeans with great enthusiasm and not without success.

We are happy that a number of good friends and colleagues from foreign laboratories have taken the time to visit our laboratory, workshops, courses and meetings and don't forget that the SCOFDA network welcomes colleagues from all over the world to participate in our meetings also in the future.

The next workshops to be held at KVL in 2003 include: Sustainable Management of Diseases in Aquaculture, November 4-6, 2003. The next Ph.D. course will be held at KVL in April 2003; Title: Interactions between pathogens and fish, April 1-8, 2003

We are also pleased to announce the launch of a brand new Master's Degree in Parasitology at KVL. It commenced in September 2002 and is run in English, welcoming students from all over the world. If you have your BSc you can enrol in this new Master's degree in Parasitology. You will be taught not only fish parasitology but also veterinary parasitology, human parasitology and wild life parasitology. Special courses include Systematic Parasitology, Zoonotic Parasites, Parasitological Methods and Ecological Parasitology. Visit us at **www.kvl.dk**

KOREA

provided by Kim Jeong-Ho, aqua@rnllifescience.com

It is a great pleasure to be the Korean representative for Ichthyoparasitology Newsletter. We spent a very hot summer this year enjoying World Cup Soccer and ichthyoparasitologists also spent a busy time in research this year.

Rockfish, *Sebastes schlegeli*, culture in Korea has been seriously affected by *Microcotyle sebastis* infection for many years. **Prof. Ki-Hong Kim**, at Pukyoung National University, has interests in developing drugs for *M. sebastis* infection, and showed some promising results by using anthelminthic drugs and H_2 histamine receptor antagonist, simultaneously. He also published a report on the newly discovered myxosporean parasite, *Leptotheca koreana* from rockfish. One of his graduate students, **Jae-Bum Cho**, is working hard on its biology and life cycle.

The protozoan infection, scuticociliatosis, has also caused damage to Olive flounder, *Paralichthys olivaceus*, culture in Korea. **Dr. Bo-Young Jee**, in the National Fisheries Research & Development Institute, has been working extensively with this ciliate, and he identified the causative agent of scuticociliatosis as *Uronema marinum*. Several chemicals and even yellow soils, have been used recently for treating the infection, but some farms are still suffering from the infection.

Dr. Jeong-Ho Kim, in RNL Life Science Company Co. Ltd., has been working with the parasites of imported tropical fish, and reported several new parasites which had not been recorded in Korea. *Camallanus cotti* is thought to cause the most serious problem in tropical fish culture in Korea. Hobbyists also complain of sudden fish deaths after purchasing guppies from pet shops. Some chemicals, including anthelminthic drugs for humans, are being used customarily for the treatment at the present time.

MÉXICO

provided by Scott Monks, smonks@uaeh.reduaeh.mx

This year parasitologists in México had the opportunity to attend the national conference on parasitology (XV Congreso Nacional de Parasitology- CONAPAR) in September. The meeting was held in Guanajuato, GTO, a beautiful city for a meeting, since it is one of tourist attractions of the area. CONAPAR is the biannual meeting for the members of the Sociedad Mexicana de Parasitología, and always is well-attended by both investigators and their students. This year the main theme was neurocysticercosis, a grave problem in Mexico. Roundtable discussions and presentations included such topics as: the biology of *Taenia solium*, clinical aspects of neurocysticercosis, cysticercosis and taeniosis, and control of *Taenia solium*. One roundtable, "parasites of fish and birds" (chaired by **Sylvia Paz Díaz-Camacho** (right), Universidad Autónoma de Sinaloa, Sinaloa), was of particular interest to ichthyoparasitologists. Topics discussed included the importance of studies of parasites of fishes and birds, prevalence and intensity of helminths of *Mugil cephalus* in Río Colorado, Baja California, and fishes that participate in the life cycle of *Gnathostoma* spp. in Sinaloa, Mexico. Oral presentations concerning helminths of fishes were made by **Griselda Pulido-Flores** and **Scott Monks,** Universidad Autónoma del Estado de Hidalgo (UAEH) ("Helminth parasites of fishes in Bahía Chetumal, Quintana Roo") and Scott Monks, **Silvia Aviles-Torres**, and Griselda Pulido-Flores (UAEH) ("Paratenic hosts of the acanthocephalan *Gorgorhynchoides bullocki* in Laguna Río Huach, Quintana Roo"). Poster presentations were made by **R. A. Hernández-Juárez, E. Tetetla-Rangel, Javier Almeyda-Artigas,** and **Miguel A. Mosqueda-Cabrera,** Laboratorio de Sanidad Acuícola y Parasitología Molecular, UAM-Xochimilco, ("Study of larvae of 3 *Gnathostoma* spp. in vertebrate hosts from Cuenca del Papaloapan"); **Gío J. Sandoval, R. I. Hernández-Herrera, J. A. Pérez-Vega, Victor Vidal-Martínez**, and **R. Rodríguez-Canul,** CINVESTAV-IPN, Mérida**,** ("Humoral response of *Oreochromis niloticus* infections by *Cichlidogyrus* spp."); **K. B. Barajas-Morán**, **B. R. Carballo-Cruz**, and **Leticia García-Magaña**, Universidad Juárez Autónoma de Tabasco (UJAT) ("Survey of larvae of *Gnathostoma* in freshwater fishes from Biosfera Pantanos de Centla, Tabasco"); and, **Serapio López-Jiménez**, UJAT ("Metazoan parasites of Poeciliidae from 3 localities in Tabasco"). The next national conference will be held in 2 years.


Laetia and Sylvia

News from various institutions

María del Carmen Gómez del Prado (Dept. de Biología Marina, Univ. Auto. de Baja California Sur, B.C.S.) could not attend the IX CONAPAR, but is continuing her work with parasites of fishes of the Gulf of California. She has a new student, **Oscar Méndez**, who is beginning his Master's thesis project on helminths of elasmobranchs.

Several parasitologists were notably absent from the IX CONAPAR. In particular, Victor Vidal-Martínez (Lab. de Parasitología, CINVESTAV-IPN, Merida, Yucatán) and **Raúl Pineda-López** (Lab. de Parasitología, Univ. Auto. de Querétaro, Querétaro) were unable to attend, although each sent students to represent their laboratories.

Roberto Javier Almeyda-Artigas, Miguel A. Mosqueda-Cabrera and their laboratory (Lab. de Sanidad Acuícola y Parasitología Molecular, Univ. Auto. Metropolitana-Xochimilco, D.F.) are continuing their work on gnathostomiasis. Many of their current projects concern maintenance of *Gnathostoma* spp. in the laboratory and on verification of life cycles in nature. Miguel says their lab should soon have the ability to supply the various life cycle stages of the Mexican species of *Gnathostoma* for laboratories wanting to do experimental

work on members of the group. This will be a big help for investigators studying such topics as immunology who need a large number of parasites. Their lab was out in full force for IX CONAPAR and their students presented several talks and posters.

Leticia García-Magaña, Universidad Juárez Autónoma de Tabasco, is also studying *Gnathostoma*, among other helminths, in freshwater fishes of Tabasco. She is busy building and organizing the collection of parasites at UJAT. Serapio López-Jiménez (right) also of UJAT, has finished his doctoral work with helminths of freshwater fishes of Tabasco and is busy writing up his results for publication.

Investigators from the Laboratorio de Helmintología, Instituto de Biología, UNAM, Rafael Lamothe-Argumedo, Gerardo Pérez-Ponce de León, Virginia Léon-Regàgnon, Luis García-Prieto, Guillermo Salgado-Maldonado, and David Osario-Sarabia were busy with various projects but still found time to work on helminths of fishes. In addition to publications concerning parasites of hosts other than fishes, Gerardo Pérez-Ponce de León published a study of endohelminths of ictalurids (Comp. Parasitol. 69:10-19) with Anindo Choudhury (from St Norbert College, DePere, WI, but working on helminths of Mexican fishes). Most of the other publications that originated in the Instituto concerned hosts other than fishes.

One of the high points of the year for Scott Monks (Lab. Sistemática Animal, Centro de Investigaciones Biológicas (left), Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico), and Griselda Pulido-Flores (Lab. Morfofisiología, CIB, UAEH) was the move into their new laboratories. Each needed the space for incoming students. **María Laura Garduño-Méndez** entered the doctoral program at UAEH in July to work with Scott on aspects of histopathology and **Víctor Rafael Zárate-Ramírez** began his MS studies and will focus on the helminth biodiversity of the freshwater fishes of the Metztitlán Reserve in Hidalgo. **Shayuri Moreno-Flores** began her MS studies with Griselda and will study the risk of zoonotic helminths for the people living in the Metztitlán Reserve. In addition, each has an undergraduate student working on her thesis: **Kenia Magali Ortega-Sánchez,** studying histopathology with Scott and **Ana Erika Gutiérrez-Cabrera** (right) studying the distribution of the introduced cestode *Bothriocephalus acheilognathi* in Hidalgo. As if that wasn't enough to keep them busy, 6 more students have asked to begin research projects in 2003 in one or the other of the two laboratories.

Both Griselda and Scott attended the 49th Annual Meeting of the Southwestern Association of Naturalists and presented talks titled "Acanthocephalans of *Eugerres plumieri* from Bahía de Chetumal, Quintana Roo, México" (GPF) and "Paratenic hosts (*Eucinostomus jonesi* and *Atherinomorus stipes*) of the acanthocephalan *Gorgorhynchoides bullocki* in Laguna Río Huach, Q. Roo, México" (SM). Scott and Griselda coauthored a publication titled "Reevaluation and emended diagnosis of *Illiosentis* and *I. heteracanthus* (Acanthocephala: Illiosentidae)" (J. Parasitol. 88: 365-369). Several projects focusing on helminths of freshwater fishes in the Metztitlán Reserve have been funded and work has begun on the survey aspects of the projects. A new addition to the CIB is **Ulises Jesús Razo Mendivil**, working in the Lab. of Molecular Systematics, who is

planning to collaborate on a project with Scott when he finishes his doctoral work in July, 2003.

Other parasitologists in Mexico were hard at work all year, but because I was not able to speak with them at the major meetings, they have gone unmentioned (but have not been forgotten!) here. Hopefully, I will be able to give you an update on their work in the next newsletter.

SOUTH AFRICA

provided by Linda Basson, BassonL.SCI@mail.uovs.ac.za

The research group on Aquatic Parasitology of the Department of Zoology and Entomology (University of the Free State, South Africa) has a major project in the Okavango River and Delta in Botswana. This project has been going on for five years now. Due to the distance from Bloemfontein, some 2000 km, and the remoteness of the locality, we usually go there for an extended time, with quite a major team of staff and students, to make the most of the occasion. In 1999 we modified a barge into a lab / kitchen / sleeping quarters and floated down the river into the swamp (photograph). It was a magical time, every evening a chorus of sounds lulled (or not) you to sleep; the nearby cough of a leopard, the giggling chatter of the wild dogs and the incessant jaw clapping of the crocodiles as they hunted each night around us in the river. Every morning a cacophony of birds awoke each team member on the barge, no hope of sleeping in! The barge worked wonderfully, even to the point of working with the microscopes while we were under full steam! With the locals moving around in their traditional mokoros (dug out canoes) and the odd tourist boat in that remote part of the delta, we were a constant source of amazement to every passerby. Our research covers the very wide field of aquatic parasitology, though most team members concentrate on various groups of fish parasites. Some students also collect snails as part of their study on trematode life cycles, as well as a student studying the weird and wonderful mites of aquatic bivalves. The impressive list of parasites is growing; the Okavango River and Delta in Botswana boast some 82 species of fish of which we have collected 72 so far over the last five years. This mecca for a parasitologist always has surprises with two new species of fish described since our previous trip last year! The parasites include a myriad of single celled wonders, which is also the most diverse group in this system (represented so far by 16 genera), but it doesn't stop there. Several crustaceans represented by eight genera have already been collected, as well as a whole waggle of worms, adult and larval stages.

This year we will be spending two months over the Christmas period in Botswana, a full summer trip amongst anopheline mosquitoes and heat waves. This will be a unique opportunity to study the fish and their parasites when the water level in the river is at its lowest and also just before the water from the Angolan highlands reach the system. The low water level will expose sand banks with their unique fauna of bivalves and the smallest cutest sand catlets, a massive 12 mm long in full adult form.

A team of eight people will leave Bloemfontein, with the students staying three weeks. After that the base team, made up of the permanent research staff, will stay on alone until a student team join us again the last two weeks.

UKRAINE

provided by Albina Gaevskaya, alviga@ibss.iuf.net

Post-graduate student, **Julia Korniychuk**, supervised by **Albina Gaevskaya**, recently defended her thesis successfully for a PhD degree. Her thesis was entitled: "Structure and characters of functioning of trematode, *Helicometra fasciata* (Rud., 1819) parasite system in the Black Sea near-shore." Julia confirmed the occurrence of 42 digenean species from the Black Sea fish, including the two new species *Cainocreadium flesi* and *Peracreadium gibsoni*. Furthermore, three genera and two species (*Pseudobacciger harengulae* and *Aphallus tubarium*) have been recorded in the Black Sea for the first time. The host-range was extended for 18 species. *Helicometra fasciata* maritae were recorded from eight new fish hosts. Julia investigated many fascinating aspects of the life-cycle and ecology of *H. fasciata* including studies on the castration of the intermediate short-lived mollusc host, *Gibbula adriatica*, by sporocysts, population dynamics of metacercariae in *Palaemon elegans* shrimps and phenotypic structure of *H. fasciata* maritae hemipopulations. She also proposed a methodical approach to estimate the degree of importance of definitive hosts for helminth parasite systems.

UNITED KINGDOM

provided by Matt Longshaw m.Longshaw@cefas.co.uk; Stephen W. Feist s.w.feist@cefas.co.uk and Grant Stentiford g.d.stentiford@cefas.co.uk

Myxozoan studies

Two main areas of parasite research are being carried out at CEFAS (funded by DEFRA) Weymouth Laboratory (Barrack Road, The Nothe, Weymouth, Dorset, DT4 8UB, United Kingdom). Firstly, we are examining the development, early pathogenesis and routes of entry by *Tetracapsuloides bryosalmonae*, the causative agent of salmonid proliferative kidney disease (PKD). We have demonstrated that the agent appears to enter the fish via the mucus cells before being transported around the body, probably via the circulatory system. We have recently completed a series of trials involving grayling and salmon and preliminary results indicate that the route of entry for the parasite appears to be same as that for rainbow trout.

We have also been characterising myxozoan infections in 0+ cyprinid fry using parasite morphology, *in-situ* hybridisation, electron microscopy and DNA sequencing as well as histology to assess their pathogenicity. We are currently assessing the impact of these parasites (and others) on coarse fish populations.

As part of our life cycle investigations for the parasites infecting cyprinids we have examined approximately 20,000 oligochaetes for the presence of actinospores and are currently in the process of describing the types found and their spatial and temporal distribution. Studies to correlate 18s DNA sequence with myxospores infecting fish are still in progress.

Parasites as indicators of environmental contamination
As part of a larger project using biomarkers for the assessment of estuarine environments, we have examined the parasite faunas of flounder, sand gobies and viviparous blennies to assess whether they could be used to discriminate between contaminated and reference sites. In combination with data on histopathological changes and other biomarkers (EROD induction, bile metabolites, DNA adducts), analysis of parasite data using diversity indices, infracommunity structure and multivariate and univariate statistics has been successful in discriminating between sampling sites.

IN MEMORIAM

Tribute to Professor Boris Kuperman (1933-2002)

Prof. Boris Kuperman will be remembered by the scientific community as an expert in the field of parasitology, and primarily fish parasitology. His work over three decades in Russia was dedicated to research on platyhelminths, especially cestodes. While the geographical coverage for Prof. Kuperman's studies ranged from the Baltic Sea to the Far East, the principal location of his fieldwork was the Volga River Basin. Prof. Kuperman's morphological and functional investigations of platyhelminths in freshwater fishes were supported by extensive data from electron microscopy and resulted in the publication of four comprehensive monographs and more than 100 papers. Over 20 masters and doctoral students in the field of parasitology were mentored by Prof. Kuperman and defended their theses under his supervision.

In 1996, Boris Kuperman and his family moved to the US, where he conducted research and lectured as an adjunct professor in the Department of Biology, San Diego State University. His research interests extended to include parasites of fish and invertebrates from a unique hypersaline lake in Southern California, the Salton Sea, as well as the study of the introduced parasites of fishes and frogs in California. In the last six years of his life in the U.S.A., he published 11 research papers and prepared for publication several other contributions. He participated at seven national and international parasitological meetings, and numerous local and regional conferences. The passing of Prof. Boris Kuperman is a huge loss to the parasitological communities of Russia and the USA, and to all of us.

E. Tellervo Valtonen

WHERE ARE THEY NOW?

Dr Alistair Dove (adove@notes.cc.sunysb.edu) has left the New York Aquarium and started in a new position as Senior Research Associate in Cornell Veterinary Medicine's Aquatic Animal Health Program. Alistair is based in a new Marine Disease lab at Stony Brook University (State University of New York) on the north shore of Long Island. Fields of work include parasites and diseases of fish and lobsters.

Dr Yves Desdevises (desdevises@obs-banyuls.fr) has a new permanent position as "Maitre de Conferences" at the Laboratoire Arago in Banyuls-sur-Mer which is part of the Université Pierre et Marie Curie (Paris 6). He hopes to continue his work on monogeneans.

BOOKS

An Introduction to Parasitic Diseases of Freshwater Trout
Authors: Kurt Buchmann and José Bresciani
Drawings by Beth Beyerholm

2001. DSR Publishers. 76 p. ISBN 87 7432 580 9.

A new text-book in English for students, anglers, aquaculturists and teachers. A general and a systematic section provides an introduction into the broad field of parasites in salmonids. Nice line drawings by B. Beyerholm serve as important elements for teachers involved in fish parasitology courses. The drawings are supplemented by numerous scanning electron micrographs showing important details of many of the parasites.

Contact: DSR booksellers
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Fax: +45-35352790

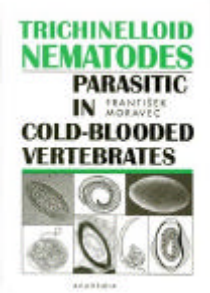
Diseases and Disorders of Finfish in Cage Culture
Editors: Patrick TK Woo, University of Guelph, Guelph, Canada, David W Bruno FRS Marine Laboratory, Aberdeen, United Kingdom and Susan LH Lim, University of Malaya, Kuala Lumpur, Malaysia

October 2002. CABI Publishing, Wallingford, Oxon OX10 8DE, UK; 384 p. ISBN: 0851994431. Price: £85.00 (US$149.00)

Our primary objective is to produce an authoritative and practical volume on diseases and disorders of finfish in cage culture. We hope the book will also alert the industry to potential and/or emerging disease problems in specific regions of the world, and to point out gaps in our knowledge so as to stimulate further research. This book is designed for aquaculturalists who are using or intend to use cage culture. It is also useful to fish health consultants (e.g. veterinarians), microbiologists, parasitologists, fish pathologists and managers and directors of diagnostic laboratories. Each chapter is written by international experts who have had personal experience or expertise on diseases and their diagnosis, and/or solutions to problems associated with the cage culture of finfish.

The book is divided into four Parts – Part 1 is on the cage culture system, the second and third are on diseases/disorders in warmwater and in coldwater fish respectively. There are three chapters in each of these Parts - one on infectious diseases in fresh water, one on estuarine and marine diseases and one on non-infectious disorders. Part IV is on sporadic and emerging diseases/disorders and it is to alert the industry to potential problems.

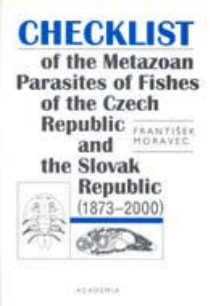
Trichinelloid nematodes parasitic in cold-blooded vertebrates
Author: Moravec, F.



2001. Academia, Prague, the Czech Republic. 429 p. Hardback ISBN 80-200-0805-5; Price CZK (Czech crowns) 395 (= about $US 12).

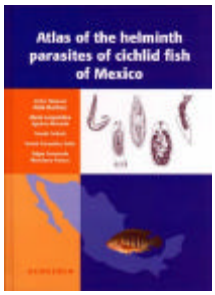
The main part of this book deals with capillariids and other related forms parasitic in freshwater and marine fishes. It also contains keys for the identification of these parasites at different taxonomic levels.

Checklist of the metazoan parasites of fishes of the Czech Republic and the Slovak Republic (1873-2000)
Author: Moravec, F.



2001. Academia, Prague, the Czech Republic. 168 p. Hardback ISBN 80-200-0907-8; Price CZK (Czech crowns) 195 (= about $US 6).

Atlas of the helminth parasites of cichlid fish in Mexico
Authors: Vidal-Martínez V.M., Aguirre-Macedo M.L., Scholz T., González-Solís D., Mendoza-Franco E.F.



2001. Academia, Prague, the Czech Republic. Hardback ISBN 80-200-0820-9;165 pages. Price CZK (Czech crowns) 195 (= about $US 6).

Parasites of Puerto Rican Freshwater Sport Fishes
Authors: Bunkley-Williams, L. and E. H. Williams, Jr.

2002. Caribbean Journal of Science, Special Publication 5. Now available free on-line at www.uprm.edu/biology/cjs/epub5/book.pdf.

This book was originally published in 1994 by the Puerto Rico Department of Natural and Environmental Resources and the Department of Marine Sciences, University of Puerto Rico at Mayagüez. Printed copies are available free from: Department of Natural and Environmental Resources, PO Box 9066600, San Juan, Puerto Rico 00906-6600.

EDITORIAL POLICY

Please note that material for the next issue should be sent to the Editor, Dr Leslie Chisholm [e-mail:chisholm.leslie@saugov.sa.gov.au], Parasite Section, South Australian Museum, North Terrace, Adelaide 5000, South Australia, Australia: Fax: +61 8 8207 7222, before the end of September, 2003.

The Newsletter is issued once a year and the persons listed on the cover page act as regional representatives. Each representative may write or collect information from the members of their country or region. Naturally, direct contributions from any recipient to the Newsletter are also welcome. The Newsletter is intended for any news, notices, comments, etc. that you feel would be of interest to the world's ichthyoparasitologists. Please note that publication lists are not accepted. The editor would be grateful if submissions would follow the format similar to that of the present Newsletter. Images, preferably saved as Jpeg files, are welcome. Hard copies of images can also be sent directly to the editor for scanning.

In order to save postal charges, national representatives are asked to download a copy of each issue of the Newsletter and make this available (photocopies, e-mail, URL, etc) to his or her domestic members, where necessary. When it is impossible to download a copy, please advise the editor. In addition, the information in the Newsletter can be made available via E-mail. It is hoped that the use of electronic formats rather than hard-copy will enable us to distribute information on ichthyoparasitology throughout the world quickly and cheaply.

Thank you

Leslie Chisholm

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