

# International Ichthyoparasitology

## Newsletter No. 9

### January 2002

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## EDITORIAL

It has been a year of significant change. The slowing economy has no doubt touched research communities around the world with reductions in funding and the subsequent loss of valuable staff. The repercussions of the terrorist attacks on the United States are yet to be realised fully but with changing priorities, science may be in for some lean times ahead. However, it is clear from the material I received from contributors that Ichthyoparasitological research continues to flourish and that long-term research programs are well established. I thank everyone who contributed to this issue of the Newsletter and David Gibson for posting it on the web. I welcome Bert and Lucy Williams as regional Representatives for the Caribbean Region and Dr Kim Jeong-Ho, representative for Korea. The new Australian representative, Ian Whittington, replaces Tom Cribb; I thank Tom for his assistance over the years. Sadly, Dr Kamegai, from the Meguro Museum passed away earlier this year. Kazuya Nagasawa has kindly agreed to be the new representative for Japan.

After 16 years in the Department of Parasitology in Brisbane, Dr Ian Whittington and his group (of which I am one) are moving to the South Australian Museum in Adelaide. We will be in the heart of the aquaculture region of Australia and are looking forward to the challenges ahead. Anyone wishing to contribute to the next issue of the Newsletter (Number 10) should note that the deadline date for submission is **September 30, 2002**. My new 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.diplectanum.dsl.pipex.com/newsletter/>

## ANNOUNCEMENTS



**Fourth International Symposium on  
AQUATIC ANIMAL HEALTH**  
September 2–6, 2002    New Orleans, Louisiana USA

Following the great success of the three previous International Symposia on Aquatic Animal Health, it is a pleasure to announce that the 4<sup>th</sup> Symposium will be held at the beautiful Sheraton New Orleans Hotel in Louisiana, USA, September 2 to 6, 2002. The 4<sup>th</sup> International Symposium on Aquatic Animal Health is jointly sponsored by the Fish Health Section of the Asian Fisheries Society, the European Association for Fish Pathology, the Japanese Society for Fish Pathology, the International Association for Aquatic Animal Medicine, and the National Shellfisheries Association. The 2002 Symposium will be hosted by the Fish Health Section of the American Fisheries Society and the organizing committee is chaired by Ron Thune. This will prove to be an outstanding meeting in one of the more exciting and interesting cities in the world.

At present, sessions are planned for Monday to Thursday, with plenary sessions first thing in the morning, followed by 3 to 4 breakout sessions for the remainder of the day. The space we have been provided will allow the poster session to run concurrently, and several functions are planned in the poster exhibit area to provide ample time for poster viewing and discussion. Make sure to mark your calendar and plan to attend the 4<sup>th</sup> International Symposium on Aquatic Animal Health in New Orleans in September, 2002.

To be added to the mailing list to receive announcements and the call for papers, visit the Symposium web site at [www.vetmed.lsu.edu/isaah2002.htm](http://www.vetmed.lsu.edu/isaah2002.htm)

Requests can also be sent to [isaah2002@vetmed.lsu.edu](mailto:isaah2002@vetmed.lsu.edu) or by regular mail to ISAAH2002, Department of Pathobiological Sciences, School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA, 70803 USA.

## **Symposium on Parasitism & Environmental Pollution: Parasites and Hosts as Indicators of Water Quality**

Friday September 13, 2002

Professor John Lewis (School of Biological Sciences, University of London) and Dr. Dave Hoole (Keele University) are convening the next British Society of Parasitology Autumn Symposium on 'Parasitism & Environmental Pollution: Parasites and Hosts as Indicators of Water Quality'. It will be held at The Linnean Society of London, Burlington House, Piccadilly, London W1J 0BF on Friday September 13, 2002 with the likelihood of a guest lecture on Fish Parasitology at the Linnean Society during the evening of Thursday September 12, 2002. The Symposium itself will also include a number of fish parasitological / toxicological topics. Professor Lewis will be finalising the programme in the near future and this will be publicised in due course by the BSP.

Further information can be obtained from **Professor Lewis**, School of Biological Sciences, Royal Holloway University of London; e-mail [j.w.lewis@rhul.ac.uk](mailto:j.w.lewis@rhul.ac.uk) or the BSP web site ([www.parasitology.org.uk](http://www.parasitology.org.uk)) or the Meetings Secretary of The Linnean Society of London at ([www.linnean.org](http://www.linnean.org))

**ICOPA X**  
**The 10<sup>th</sup> International Congress of Parasitology**  
*Parasitology in a New World*  
**August 4 to 9, 2002**

Vancouver Convention and Exhibition Centre, Vancouver, Canada

**Scientific Programme.** The Congress will allow for scientific communication, including Plenary Sessions, Invited Lecturers, submitted papers in the form of oral and poster presentations and informal round table discussions. A preliminary program is available at <http://www.venuewest.com/ICOPA>. Of interest to ichthyoparasitologists are the plenaries involving aquatic environments, control of diseases, and parasites in food production and distribution. Papers may be presented in any language, although the official language of the Congress is English. Present plans do not include a translation service.

**Registration Fees** (in US dollars before April 30, 2002). Full, \$395; student, \$200; daily \$150, accompanying person, \$150. The package for full delegates and accompanying persons includes the welcoming reception and banquet.

**Precongress Workshops.** There are 2 precongress activities: 1) The impacts of myxozoan parasites in wild and farmed finfish, July 31-August 2, 2002, Nanaimo, BC, <http://www.pac.dfo-mpo.gc.ca/sci/aqua/english/symposium.htm>; 2) Collecting opportunity at Bamfield Marine Station, Bamfield, BC, July 27-August 3, 2002. For information, contact Dr. John Holmes, Department of Biological Sciences, University of Alberta, Edmonton, Alberta, Canada, T6G 2E9. E-mail: [john.holmes@ualberta.ca](mailto:john.holmes@ualberta.ca) Fax: +1 780 492 9234.

Be sure to join us in Vancouver in August of 2002! For further information on the Congress, please contact: The ICOPA X Secretariat, c/o Venue West Conference Services, Ltd., #645 – 375 Water Street, Vancouver, British Columbia, Canada V6B 5C6. Tel: +1 604 681 5226, Fax: +1 604 681 2503. E-mail: [congress@venuewest.com](mailto:congress@venuewest.com)

**Fifth Symposium on Diseases in Asian Aquaculture**  
**25-29 November 2002**  
**The Gold Coast, Australia**

The Fish Health Section of the Asian Fisheries Society will hold the Fifth Triennial Symposium on Diseases in Asian Aquaculture at the Gold Coast, Australia from 25-29 November 2002. Satellite workshops on *Mollusc Health* and *Epidemiology and Risk Assessment* will immediately follow the Symposium. The Gold Coast City is a major international tourist destination situated approximately 100 km south of Brisbane. A first announcement for the DAA 5 Symposium with information on the conference venue, registration and submission of abstracts will be issued in December 2001. For further information please contact **Dr Richard Callinan** ([richard.callinan@agric.nsw.gov.au](mailto:richard.callinan@agric.nsw.gov.au); fax. 61-2 -6626 1276) or **Dr Peter Walker** ([Peter.Walker@csiro.au](mailto:Peter.Walker@csiro.au); fax. 61-7-3214-2881).

# International Symposium on the most recent advances in the molecular systematics and phylogeny of parasitic nematodes

October 2002

Rome, Italy,

Dear Friends and Colleagues,

For the last 20 years I have been studying the systematics, population genetics and evolution of ascaridoid nematodes. These studies have been carried out here in Rome and collaboration with a large number of colleagues from around the world has yielded strong support for this work. In recent years, new approaches have been developed and innovative methodologies have provided additional tools that have been applied to a wide range of parasitic nematode groups. Given the great interest around the systematics and evolution of parasitic nematodes, I felt the need to gather together the different experiences of the many scientists in this field. For these reasons I am very glad to promote the organisation of an International Symposium on the most recent advances in the molecular systematics and phylogeny of parasitic nematodes, to be held in Rome in October 2002. The Symposium will run for three or four days (depending on the final programme) and several researchers involved in these studies have already expressed their interest to participate.

Please find attached to the Web version of this document the First Announcement that should be filled in and returned to me by fax or E-mail as soon as possible so that I can have a more precise idea of the number of participants. The Organising Committee will keep the expenses as low as possible and will explore all possibilities to facilitate the participation of young researchers. Hoping to have news from you all very soon.

Best regards,

Lia Paggi (paggi@uniroma1.it)

## MEETING REPORTS

### Report on the 4<sup>th</sup> International Symposium on Monogenea

Provided by Ian Whittington (ISM4 Organising Committee Chair),  
whittington.ian@saugov.sa.gov.au



The 4<sup>th</sup> International Symposium on Monogenea (ISM4) was held from July 9-13, 2001 at the Women's College of The University of Queensland (UQ), Brisbane and was a great success. Attendance at ISM4 was outstanding: 86 delegates representing 26 nations plus an additional 20 accompanying persons registered.



The Scientific Programme was full: 14 Invited Talks, 58 Contributed Talks (19 of these by students!) and 26 Posters. The symposium was officially opened with a few words from **Emeritus Professor John Sprent**, the founder of the

Department of Parasitology at UQ. John is an Honorary Member of the Helminthological Society of Washington. It was appropriate that he and **Professeur Louis Euzet** (another Honorary Member) from France were present when, as mentioned in the previous Newsletter, **Professor Sherman Hendrix** (Gettysburg, USA), representing the learned society, presented Honorary Membership to **Dr Graham Kern** (Norwich, UK) (Sprent, Euzet, Hendrix and Kern pictured left to right). This award recognized Graham's 40 years' research on *Entobdella soleae*, surely the best known and most intensively studied monogenean.

The first scientific session, had an Aussie flavour. Chaired by **Mal Jones** (pictured right) sporting a hat replete with corks and an *Entobdella* pointer with red glowing eyes, speakers in the Platyhelminth Panorama were **Lester Cannon** on "turbellarians", **Ian Beveridge** on cestodes and **Tom Cribb** on the Digenea versus Monogenea conflict! After this broad beginning, the science focused entirely on the Monogenea. Topics covered included Phylogeny (invitee: **Tim Littlewood**), Habitat Selection & Transmission Behaviour (invitee: **Mike Sukhdeo**), Host-specificity (invitee: **Richard Tinsley**), Monogenean Parasite-host Relationships (invitees: **Kurt Buchmann**; **Tomoyoshi Yoshinaga**); Biology of Gyrodactylids (invitee: **Jo Cable**); Monogeneans & Aquaculture (invitee: **Kazuo Ogawa**); Evolutionary Biology & Ecology (invited ecologists: **Serge Morand**; **Robert Poulin**); Taxonomy, Morphology & Biodiversity (invitee: **Louis Euzet**).



Scientific highlights were many. They included: a prospective view of what we still need to know about *E. soleae* (by Kern); accumulated wisdom on Monogenea over 5 decades (by Euzet); different perspectives on host-location (Sukhdeo; Yoshinaga); the role of host immunology in host-specificity (Buchmann; Tinsley) and gyrodactylids (by Cable); updated details on gyrodactylid development, including so-called "anarchic embryology"; impact by monogeneans on finfish aquaculture (from Ogawa). Throughout ISM4, the question of whether the Monogenea are monophyletic or paraphyletic emerged repeatedly (from independent talks by Littlewood, **Jean-Lou Justine** [pictured here with a few Australian birds] and Euzet). Whether mono- or paraphyletic, the consensus is that "Monogenea" comprise a fascinating assemblage of parasitic worms and research on them has much to offer the disciplines of parasitology and biology in general. Winners of the Best Student Talk were **Tomáš Zurawski** (Czech Republic) and **Yves Desdevises** (Canada/France). Winners of the Best Student Poster were: **Phoebe Carter** (Scotland); **Peter Cook** (Australia). The standard of all student presentations, whether talks or posters, was applauded. During the week, there were discussions about where ISM5 in 2005 might be: Bristol (UK); Brno (Czech Republic); Guangzhou (China).

Social highlights were abundant too. Delegates were treated to an interactive Aboriginal Cultural Evening where some tried to extract noises from a didgeridoo and participated in dreamtime story dancing. There was a Big Day Out to O'Reilly's in Lamington National Park where the rainforest, spectacular views, colourful birds and other wildlife (carpet python, pademelons, bowerbirds) thrilled delegates. Throughout the week, all at Women's College enjoyed food and drink where the staff did a tremendous job to make everybody feel welcome. The week ended with a Gala Conference Dinner with a marine theme. The dining hall was decorated with helium balloons, including dolphins, coral reef fish and an

enormous octopus! All delegates sported homemade hats with a marine theme, including anemones, crabs, cleaners, lighthouses, polychaetes ... and even an eviscerating sea cucumber!

The conference would not have been possible without the hard work and dedication of the entire ISM4 Organizing Committee who deserve mention here: **Leslie Chisholm; Bronwen Cribb; Marty Deveney; Ingo Ernst; Mal Jones; Ian Whittington**. Several volunteers from UQ ably assisted the smooth running and organization of ISM4 and we are most grateful for their efforts with the Accompanying Persons Program, Audio-Visuals and Registration Desk: **Tavis Anderson; Clinton Chambers; Peter Cook; Nicole Elphinstone; Kathryn Hall; Sarah Shaw; Megan Tibaldi**.



Photos (clockwise). Some of the The French contingent including Serge Morand, Pierre Sasal, Sophie Bentz, Laetitia Plaisance, Elizabeth Faliex, Claude Combes (with Isabelle and Marie Cerguine Combes). Leslie Chisholm and Louis Euzet. Kurt Buchman. Richard and Heather Tinsely. David Gibson and Susan Lim.

### **Fifth International Acanthocephala Workshop** provided by Griselda Pulido-Flores, [gpulido@uaeh.reduaeh.mx](mailto:gpulido@uaeh.reduaeh.mx)

The Fifth International Acanthocephala Workshop was held in Jyväskylä, Finland. I think it is appropriate that a person working with a different group of helminths (in this case, monogeneans) write concerning the event! The workshop was a huge success and was attended by a large number of investigators studying almost every aspect of parasitology involving acanthocephalans. It was sponsored by the Department of Biological and Environmental Science, University of Jyväskylä, and held at the beautiful university field-station at Konnevesi, Finland.



The Scientific Organizers were **E. Tellervo Valtonen** (University of Jyväskylä, Finland), **Brent Nickol** (University of Nebraska-Lincoln, USA) and **Horst Taraschewski** (University of Karlsruhe, Germany). Local organizers were E. Tellervo Valtonen and **Tuula Sinisalo**, each of which should be commended for their excellent work.



One of the highlights of the meeting was the presentation by **James Garey**, who is working on the problem of identifying the sister-group to the Acanthocephala. Social highlights included Finnish-style sauna, a boat ride on Lake Konnevesi, birdwatching and supper in an authentic Finnish farmhouse.

Presentations were made by:

**James Garey**—Are acanthocephalans highly derived rotifers? The evolutionary relationship of acanthocephalans to other metazoans; **Scott Monks**—Phylogeny, systematics, and classification of the Illiosentidae: are they compatible?; **Omar Amin**—Revision of the genus *Neoechinorhynchus* with the erection of two new subgenera; **G. Salgado-Maldonado**—Acanthocephalans of freshwater fishes of Mexico: an impoverished fauna; **E. O'Mahony**—Strain differences in *Pomphorhynchus laevis*; **F. Reitze**—The morphology and ultrastructure of acanthors; **J. A. Aznar**—Trunk muscles and body shape in *Corynosoma*: conservatism and novelty; **J. C. Chubb**—Theoretical study of acanthocephalan life cycles; **H. Taraschewski**—Host-parasite interactions in acanthocephala: events inside intermediate, paratenic and final hosts; **D. P. Bolette**—Oligacanthorhynchid cystacanths in poikilothermic hosts of the southwestern United States; **Brent B. Nickol**—Parasite-induced modifications in behavior: increased vulnerability to predation or resource partitioning?; **B. Sures**—Acanthocephalans in pollution studies; **R. Konecny**—Are Acanthocephalans potential bioindicators?; **S. Laimgruber**—Comparison of acanthocephalan populations from three areas with different heavy metal concentrations; **A. Schludermann** The role of acanthocephalans as indicators for heavy metal accumulation; **J. Lumme**—Importance of taxonomy in understanding ecology: utilization of molecular markers; **B. S. Dezfuli**—Immune response of the chub, *Leuciscus cephalus*, infected with the intestinal parasite, *Pomphorhynchus laevis* (Acanthocephala); **M. Steinauer**—Biogeography of the parasites of *Lepomis* (Pisces: Centrarchidae): the effect of vicariance events on the distribution of hosts and their parasites; **C. Byrne**—The interactions between *Acanthocephalus clavula* and *Pomphorhynchus laevis* in the intestine of wild brown trout in the east of Ireland; **E. T. Valtonen**—*Corynosoma* communities in the seals of the Baltic Sea; and, **T. Sinisalo**—Metazoan parasites in an isolated ringed seal population in a Finnish lake.



A full list of abstracts may be available from the local organizers, E. Tellervo Valtonen and **Tuula Sinisalo**.

At the close of the workshop it was decided that Guillermo Salgado-Moldanado (México; pictured left) would serve as the principle local organizer for the Sixth International Acanthocephala Workshop with hopes that it can be held at the Las Tuxtlas field station in Veracruz, México.

**Scandinavian Society for Parasitology**  
provided by Professor E. Tellervo Valtonen, [etvalto@dodo.jyu.fi](mailto:etvalto@dodo.jyu.fi)

The Scandinavian Society for Parasitology (SSP) held its 35<sup>th</sup> jubilee meeting in Stockholm Sweden, October 4-7, 2001. The SSP was founded 1967, but due to biannual meetings the anniversary was celebrated now and not in 2003. The newly elected president of the society is **Dr Karl Skirnison** (Iceland); vice-president is **Dr Maria vang Johansen** (Denmark); secretary **Dr Charlotte Maddox Hyttel** (Denmark); and treasurer **Dr Katja Pulkkinen** (Finland). At the SSP meeting in Stockholm, there was a special focus on nematodes. Invited speakers, among others, included **Dr Mark Blaxter** (Edinburgh, Scotland), **Associate Professor David Fitch** (New York, USA) and **Associate Professor Steven Nadler** (Davis, USA). The next meeting of SSP will be held in Bergen, Norway in 2003 and **Professor Arne Skorping** heads local organizing committee.

## **Second International Congress of Parasitology and Tropical Medicine**

provided by Dr Susan Lim, [susan@biology.um.edu.my](mailto:susan@biology.um.edu.my)

The Second International Congress of Parasitology and Tropical Medicine was organised by the Malaysian Society of Parasitology and Tropical Medicine and held at Hotel Mutiara in Kuala Lumpur, Malaysia October 9 to 11, 2001. There were 9 oral and 7 poster presentations related to parasites of fish and other aquatic organisms. The oral presentations concerning parasites of aquatic organisms were actively solicited to provide information on current research, significance and impact, as well as directions for research on parasites of aquatic organisms that will be important future food resources. Presentations included talks by: **Susan Lim** (Diversity of parasite of aquatic organisms in the tropics); **Jean-Lou Justine** (Molecular phylogeny of helminth parasites); Jean-Lou Justine and Susan Lim (Phylogenetic relationships within the monogeneans (Platyhelminthes) inferred from partial 28S rDNA sequences); **David Halton** and **Aaron Maule** (Novel antiparasitic targets from parasites); **Gab-Man Park** and **Tai-Soon Yong** (Occurrence of a diploid type and a new first intermediate host of a triploid type *Paragonimus westermani* in Korea); **K.Y. Leung** (Cataloguing virulence genes in bacterial fish pathogens); **J.Y. Chai** (Food-borne trematode infections in Asia and management) and 2 talks by **Patrick Woo** (Fish as an important animal protein and the development of an integrated strategy against piscine parasitosis; and The pathobiology in salmonid cryptobiosis).

## **The 8<sup>th</sup> European Multicolloquium of Parasitology**

September 10-14, 2000

provided by Dr Wojciech Piasecki, [piasecki@fish.ar.szczecin.pl](mailto:piasecki@fish.ar.szczecin.pl)

This note was intended to appear in the last-year's issue of the newsletter. As a "brand-new" regional representative, I simply missed the deadline. Because of the importance of the event, I decided, however, to report on it in this-year's issue.

European Multicolloquia of Parasitology have been organised every 4 years since 1971 and have been hosted by 7 different European countries including France, Hungary, Italy, The Netherlands, Turkey, United Kingdom and Yugoslavia. The Eighth European Multicolloquium of Parasitology was organised jointly by the European Federation of Parasitologists and the Polish Parasitological Society and was held at the grounds of The International Poznan Fair, in Poznan, Poland. The event included 6 satellite symposia and 8 major sessions. In addition to the symposia and sessions, the program also featured the

EFP Young Scientist Award, 2 workshops on available CD-ROMs and the internet, displays of microscopic equipment and a book exhibition.

Three full-day sub-sessions were dedicated to fish parasites. The sub-session entitled "Parasites community dynamics in fresh water and marine environments" was chaired by **Prof Dr. Teresa Pojmańska** and **Dr David Marcogliese** and included 11 oral presentations and 6 posters. The second Sub-session "Fish parasites: morphology and systematics" included 12 talks chaired by **Dr James Chubb** and **Dr Wojciech Piasecki** and 5 poster presentations. The third sub-session, "Host-parasites relationships: immunology, pathology and prophylaxis", was chaired by **Dr Christina Sommerville** (pictured right) and **Dr Antonina Sopińska** and included 11 oral presentations and 5 posters.



Papers discussing fish parasites were also presented in other sessions including 7 papers on fish tapeworms, roundworms and monogeneans in the "Cladistic and traditional systematics and taxonomy" session chaired by **Prof Dr Katarzyna Niewiadomska** and **Dr David Gibson**. There were also 6 papers on monogeneans, digeneans, cestodes and acanthocephalans in the "Morphology and ultrastructure" session chaired by **Dr David Halton** and **Dr Zdzislaw Swiderski**. A few other ichthyoparasitological talks were also dispersed among a number of other sessions (see Full Programme on Website).



The organizing committee received a total of 543 abstracts, not only from Europe, but from countries representing almost all continents. The abstracts have been published in *Acta Parasitologica* (ISSN 1230-2821) 2000, **45**(3). A detailed programme of the conference can be viewed at: <http://www.webmedia.pl/emop8/emop-1a.htm>  
The European Federation of Parasitologists decided that the next Multicolloquium would be held in Valencia, Spain in 2004.

## UPDATES

### HOMSIR

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

provided by Ken Mackenzie, [nhi758@abdn.ac.uk](mailto:nhi758@abdn.ac.uk)

This project is funded by the EU Commission within the 5th Framework Programme, Quality of Life and Management of Living Resources. The project started on January 1, 2000 and will run for three years.

The overall objective is the biological stock identification of the horse mackerel (*Trachurus trachurus*) throughout its whole 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). The proposed research will set up an improved multi-disciplinary tool for fish stock identification, and an exhaustive knowledge of horse mackerel stock structure, in order to allow an enhanced management of this resource in EU waters in the short, medium and long term. The horse mackerel in the North-east Atlantic are currently managed as three separate stocks: North Sea, Southern and Western. Since little information from research surveys is available, this separation is based on the observed egg distributions and the temporal and spatial distribution of the fishery, with little in the way of a true biological basis. Even less is known about horse mackerel stock structure in the Mediterranean.

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).

Samples of 50 fish each were taken in 2000 and 2001 from 21 stations throughout the Mediterranean and in the Northeast Atlantic from the coast of Morocco to the south-west coast of Norway. All samples taken in 2000 have now been examined for protozoan and metazoan parasites. Larval anisakid nematodes of the genera *Anisakis* and *Hysterothylacium* from these samples are identified by genetic markers obtained by multilocus electrophoresis (MAE).

To date 30 species of parasites, including at least two new host records, have been recorded from the horse mackerel examined. From the point of view of using parasites as biological tags, the most important points to emerge from the early results are as follows.

1. Samples representing the putative "Western" and "North Sea" stocks were characterized by contrasting patterns of infection with anisakid nematode larvae. Almost all fish in sample 02 (west of Ireland) had massive infections of *Anisakis* spp. and small infections of *Hysterothylacium aduncum*, whereas the reverse was true of fish in sample 05 (eastern North Sea). It was possible to single out individual fish in sample 05 as migrants from the "Western" stock area from their characteristic patterns of infection. This result shows considerable promise for estimating the extent of mixing between these stocks.
2. The three sibling species of *Anisakis* so far identified from these samples show marked differences in their geographical distributions. If further samples currently under study confirm these distributions, they could be used very effectively in combination with the data in point 1 above to discriminate between stocks of horse mackerel.
3. Prevalence of the coccidian protozoan *Goussia cruciata* was significantly lower in fish from the most northern stations than from other Atlantic samples. In the Mediterranean, prevalence of the same parasite was also significantly lower in western than in eastern samples. Infections of *G. cruciata* can be quickly and easily identified, so it may prove to be a useful stock discriminant.

4. The monogenean *Heteraxinoides atlanticus* was found in six fish from two samples taken off Portugal, in three from the sample taken off southern Norway, and in one fish from the sample taken from the southern Bay of Biscay. This species has previously only been reported from *Trachurus picturatus* from further south and offshore and so could possibly be used as an indicator of immigration from more southern regions.
5. The acanthocephalan *Rhadinorhynchus* sp. was found only in two fish from the sample taken off the Algarve coast in southern Portugal. It resembles the species *Rhadinorhynchus cadenati*, which was previously reported from *Trachurus picturatus* from off the west coast of Africa, and could possibly be used to identify migrants from this region.

These early results, combined with results from other methods of stock discrimination used in this multidisciplinary study, could significantly improve the management of this important fishery resource. The study underlines the importance of using biological tag studies in combination with other methods, rather than in isolation, to achieve practical results in fisheries management.

For more information about **HOMSIR**, visit our website at [www.homsir.com](http://www.homsir.com)

### **BIODIVERSITY OF STICKLEBACK PARASITES**

provided by David Marcogliese, [david.marcogliese@ec.gc.ca](mailto:david.marcogliese@ec.gc.ca)

Since 1997, David J. Marcogliese has been coordinating a Canadian National Stickleback Parasite Survey (see: <http://www.biology.ualberta.ca/parasites/indexen/module1.htm>). This project has been expanded to an international context and has been approved as a core project for the International Biodiversity Observation Year (IBOY: 2001-02) (see: <http://www.nrel.colostate.edu/IBOY/index2.html>), an initiative of DIVERSITAS, the International Programme on Biodiversity Science.

The project has 28 participants from 10 countries, including Canada, Czech Republic, England, Germany, Iceland, Japan, Norway, Russia, Scotland and United States. Glenn Bristow of the University of Bergen is the European coordinator. While there is no financial support as of yet for the project as a whole, individual researchers have generously committed some of their time and resources to the project. Within Canada, our project has received the support of the Biodiversity Science Board of Canada, the Biological Survey of Canada, and the Biodiversity Committee of the Canadian Society of Zoologists, in addition to a number of Canadian national parks.

Sticklebacks of all species will be collected from various sites from around the world in 2001 and 2002, and most likely thereafter. After collections, the participants will assemble when possible to describe their results and collate the data together for analysis. The data base will be used to address evolutionary, ecological and environmental hypotheses. A workshop is planned for ICOPA X in Vancouver, 4-10 August, 2002 for those participants in attendance. Ultimately, in addition to developing a monitoring indicator for biodiversity and environmental stress, we hope to produce products such as pamphlets, picture keys, and CD-Rom learning tools to allow non-parasitologists including biologists and students to be able to look at stickleback parasites and implement monitoring systems.

Those wishing to participate in this continuing international effort should contact David J. Marcogliese (St. Lawrence Centre, Environment Canada, 105 McGill, 7<sup>th</sup> Floor, Montreal, Quebec, Canada H2Y 2E7; Tel: 514-283-6499; Fax: 514-496-7398; email: [david.marcogliese@ec.gc.ca](mailto:david.marcogliese@ec.gc.ca)) for further information.

## CURRENT RESEARCH ACTIVITIES IN VARIOUS COUNTRIES

### AUSTRALIA

provided by Ian Whittington, [whittington.ian@saugov.sa.gov.au](mailto:whittington.ian@saugov.sa.gov.au)

The 4<sup>th</sup> *International Symposium on Monogenea* (ISM4) was the event that occupied the “collective mind” of the UQ Monogenea Lab. for much of 2001. Between July 9 and 13<sup>th</sup>, the conference came and went at the Women’s College of the University of Queensland, and was a huge success (as were the Closing Dinner Marine Theme hats!). A separate report about ISM4 appears earlier in the Newsletter. Honours Student **Tavis Anderson** was busy this year mapping and mounting thousands of parasites from the gills of shovelnose rays collected from Heron Island. His Honours colleague, **Peter Cook**, delighted in searching for monogenean eggs amongst algae-fouled sea-cage material from Japan. Postdoctoral Fellow **Ingo Ernst** departed mid-August, 2001 for another 3-month visit to Japan to continue fieldwork in collaboration with commercial partners, Yamaha Nutreco Aquatech, for the Japanese aquaculture industry.

By the time this Newsletter is posted, **Ian Whittington** will have moved his laboratory to Adelaide where he has taken up a new position as Research Scientist at The South Australian Museum. Although based principally at the Museum, Ian’s position is affiliated with The University of Adelaide. The Monogenea Lab. will be re-established initially in the Department of Environmental Biology at The University of Adelaide, with office space and facilities at the Museum. Ian has taken grants, equipment and people with him! **Leslie Chisholm** also made the move down south to continue work with Ian on an ARC grant investigating the ecology of monogeneans from the shovelnose ray. Leslie and Ian are looking forward to investigating some southern elasmobranchs (but not the big white ones!) for parasites. For 2002, there will be quarterly migrations back to the Great Barrier Reef to collect material. Ian and Leslie will also be participating in a large collaborative venture funded by a new NSF grant won by **Janine Caira** (Connecticut, USA) to examine parasites from elasmobranchs in Malaysian Borneo. The first collecting trip will take place in May 2002 and promises to yield lots of new species! Ingo and Ian also just received news that they have won a 3 year Australian Research Council Linkage Grant to continue their work in conjunction with Industry partners in Japan and in South Australia developing biological methods to control monogenean infections in finfish aquaculture. With this recent influx of funding it is likely additional personnel will also make the trip to Adelaide. PhD student **Marty Deveney** has handed in his mammoth Benedeniinae thesis. He took up a new position at the end of 2001 as Fish Research Officer at Primary Industry Resources, South Australia (which is also, coincidentally, located in Adelaide). So the southern migration of monogeneologists in Australia continues, as do the Friday lunchtime feasts which will no doubt be supplemented by some fine Barrosa Valley and MacLaren Vale wines! We’re looking forward to setting up the Monogenea Lab. in Adelaide, continuing research on problem species in finfish aquaculture and generally working with

**Professors Tim Flannery, Bob Hill and Russ Baudinette** to further the strengthening links between the Museum and the University.

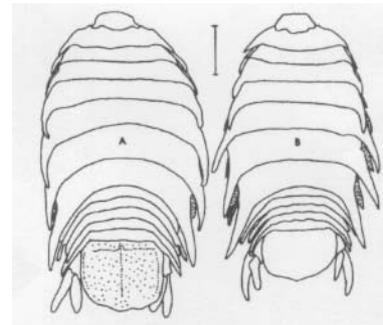
## CARIBBEAN

provided by Ernest H. (Bert) Williams, Jr., [bert@rmocfis.uprm.edu](mailto:bert@rmocfis.uprm.edu) [marine lab], [bert@rumac.uprm.edu](mailto:bert@rumac.uprm.edu) [campus]; Lucy Bunkley-Williams, [l\\_bunkley@rumac.upr.clu.edu](mailto:l_bunkley@rumac.upr.clu.edu)

We are pleased to be the Caribbean Representatives for the Ichthyoparasitology Newsletter. Please assist us in this effort by sending us copies of your papers, progress reports, news items or announcements concerning Caribbean fish parasites. We have not considered Caribbean contributions by Mexican researchers in this summary as Mexico has its own representatives.

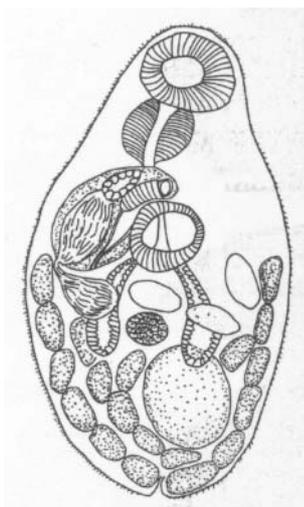
### Isopods

Seven papers and five abstracts have recently been published concerning Caribbean fish-parasitic isopods, including genetic relationships among *Anilocra* spp., a new species of *Nerocila* (illustration) from Bahamian hogfishes, surveys of Colombian and Venezuelan isopods, new hosts and locality records for flyingfish isopods, biogeography of *Anilocra* spp., and emergence of *Gnathia* spp.



**Dr John Aho**, Auburn University at Montgomery, Alabama, has conducted some extensive field and laboratory studies on the bicolor damselfish, *Stegastes partitus*, and its host-specific isopod, *Anilocra partiti* in Jamaica. We look forward to seeing his results. The 30th Scientific Meeting of the Association of Island Marine Laboratories of the Caribbean in was held in La Parguera, Puerto Rico, May 2001. **Drs Dwayne and Christina Meadows**, University of Utah, presented a paper concerning their field experimental work with the foureye butterflyfish, *Chaetodon capistratus*, and its genus specific isopod, *Anilocra chaetodontis*. **Dr John Munro**, ICLARM, also attended this meeting. Bert complimented him on including fish-parasite data in his book on Fisheries in Jamaica. So few fishery biologists ever consider fish parasites. **Dr Silvia Macia and Mike Robinson**, Directors of the Hofstra University Marine Laboratory, Jamaica are doing transfer experiments with *Anilocra partiti* on bicolor damselfish in Jamaica. For years, we were the only ones working on these *Anilocra* spp. in the Caribbean. Good to see more attention paid to these marvelous creatures. **Dr Paul Sikkel**, Murray State University, and his students conducted field experiments with the emergence of gnathiid isopods at our marine lab this summer.

### Digeneans



One recent paper on Caribbean flukes describes a new species (illustration) from mountain mullet and gobies. **Mr Ash Bullard**, Gulf Coast Research Laboratory, Mississippi, presented a paper on fish sanguinicolids (not Caribbean ones) at the American Society of Parasitologists (ASP) Meeting in San Juan, Puerto Rico, (June/July) 2000. We are cooperating with him on a new blood fluke from Caribbean fishes. After the ASP Meeting, Ash and his colleague, **Sergio Martorelli**, worked for several days in our lab trying to locate more sanguinicolids. **Dr Faud Nahhas** also visited our lab briefly after the ASP meeting. Bert tried to talk him into working on digeneans of Caribbean fish once more, but he has too

many other fish-parasite projects in progress (see report under United States). **Dr William Dyer**, Southern Illinois University, has worked with us for a number of years mostly on the digeneans of Caribbean fishes.

### **Protozoans**

Two recent papers on Caribbean major disturbances consider protozoan diseases. One of Bert's graduate students, **Patrick Reyes**, recently completed (2000) his thesis on immunology of freshwater Ich, *Ichthyophthirius multifiliis*. Slime-blotch Disease (SBD) remains an important problem in Caribbean fishes (see below). We identified SBD lesions on surgeonfish from the Bahamas for students of **Dr Paul Bartels**, Warren Wilson College, North Carolina; results of this study are not yet available.

### **General Fish Parasites**

Recent Caribbean abstracts or papers consider parasites of amberjacks, aquacultural parasite problems, n. spp. from coral-reef fishes, and intestinal helminthes in the US Virgin Islands. One of **Lucy Bunkley-Williams'** graduate students, **Noemí Peña**, is working with parasites of amberjacks. Two other graduate students of Lucy's, **Luis Bosques** and **Omayra Hernandez**, are investigating parasites of Great Barracuda, *Sphyraena barracuda*. Bert has a student, **Alfonso Aguilar**, examining parasites of hamlets, *Hypoplectrus* spp.

### **Fungi**

One recent paper describes Tilapia Wasting Disease, which still remains active particularly in brackish water areas in Puerto Rico. One of Bert's graduate students, **Prof. Yvonne Colon**, University of Puerto Rico at Aguadilla, is working with Tilapia Eye Disease. This unexplained condition has had a devastating effect on local tilapia culture. Some preliminary indication of fungal involvement has been found. Graduate students **Angel Nieves** and Yvonne, are attempting to characterise local fish infections of *Saprolegnia* spp.

### **Monogeneans**

Besides an update on hosts of *Neobenedenia mellani* recently published by Ash Bullard, we are cooperating with Bill Dyer and **Dr Tom Rand**, St. Mary's University, Halifax, Nova Scotia, Canada with other projects concerning Caribbean monogeneans.

### **Cestodes**

**Professor Janine Caira**, Department of Ecology and Environmental Biology, University of Connecticut, visited our lab recently in an attempt to obtain local specimens of spotted eagle rays, *Aetobatus narinari*, and their cestode parasites. We have found specimens of *Gyrocotyle* in locally caught chimera and are not certain if these had been reported in the Caribbean previously.

### **Nematodes**

Bert has a new graduate student, **Hernán Torres**, working with mostly free-living nematodes, but he may have time to look at a few of the parasitic ones we have collected from fishes. We are investigating some nematode infections involved with mortalities of brown pelicans, *Pelicanus occidentalis*, which acquire these nematodes from fishes.

### **Copepods**

One recent paper notes new records of fish-parasitic copepods off Colombia. We are cooperating with **Dr George Benz**, Tennessee Aquarium and SE Aquatic Research Institute, Chattanooga, Tennessee; and with **Dr William Hogans**, Huntsman Marine Science Center, St. Andrews, N. B., Canada, on projects concerning copepod parasites of Caribbean fishes. We also identified some copepods on Great Barracuda from the Bahamas for students of Dr Paul Bartels and are waiting to see the results.

### **Fish Parasite Cleaning**

It is good to see many new and interesting contributions on fish parasite cleaning both in the Caribbean and in the Indo-Pacific. Three recent papers consider diet, interactions, and parasite loads for cleaner fishes in Barbados; and a recent newspaper article considers cleaners in Belize. We have been cooperating with Dr Paul Bartels on cleaning studies and Dr Paul Sikkell has also been doing some cleaner work at our lab.

### **A Fish as a Pathological Factor**

One recent paper describes the death of a Caribbean dolphin [mammal] caused by an embedded needlefish beak.

### **Slime-blotch Disease Epizootics/Enzootics**

Over the last few years we have received some samples and more observational reports of external lesions on Caribbean coral-reef fishes. All of the cases for which we received samples were Slime-blotch Disease caused by *Brooklynella hostilis* and its associates. Besides this enzootic, mass mortalities occurred throughout the eastern Caribbean, and sporadic, smaller fish kills at various Caribbean locations. SBD is reputed to have caused the Caribbean-wide mass fish mortality in 1980, and similar ones in south Florida and Bermuda since. Many of these mass mortalities have been poorly documented due to the problem of sending freshly dead fish samples from remote Caribbean localities. Dying fishes with these lesions can simply be preserved in 10% formalin. This protozoan and its associates can be identified from preserved fishes.

### **Sharpnose Puffer Mortalities**

We have recently received reports of high prevalences (50-80%) of infections with large, external white cysts or growths on sharpnose puffers, *Canthigaster rostrata*, in Curaçao, Netherlands Antilles, and in St. Thomas, U.S. Virgin Islands. We have been unable to find similar infections in this fish in southwestern Puerto Rico. These reports originally appeared on the internet Coral List. We contacted the observers and requested formalin-preserved samples of these infected fish. We also broadcast a general request for more information/samples on Coral List. Thus far, we have been unable to obtain samples. Sharpnose puffers are known to carry Marine Ich, diseases caused by *Trichodina spheroidesi* and *Cryptocaryon irritans* (Ciliophora) in wild coral reef fishes but not to express lesions in the wild. Also Ich lesions are not as obvious as those described. The lesions could represent Lymphocystis Disease, but these are not usually this common in wild fishes. Additional records or any specimens would be appreciated.

### **Caribbean Journal of Science**

This journal has traditionally published papers and short papers concerning Caribbean natural history. It has recently been upgraded to an international journal and is now listed in all the major indexing and abstracting services. Accepted papers are not only printed, but become available free-of-charge online. Besides the printed journal, CJS has an internet publishing component, and special editions for longer contributions. Manuscripts are handled expeditiously with a relatively short review and quick turn-around time. Short

papers can be submitted by e-mail. Bert, as Assistant Editor [assisted@carisci.org], welcomes the submission of papers dealing with parasites of Caribbean fishes.

A full list of publications associated with any of the work described above can be obtained by contacting 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 at Mayagüez, P.O. Box 908, Lajas, PR 00667-0908. **Dr Lucy Bunkley-Williams**, Caribbean Aquatic Animal Health Project, Department of Biology, University of Puerto Rico, P.O. Box 9012, Mayagüez, Puerto Rico 00861-9012.

## GERMANY

**Institute for Freshwater Ecology and Inland Fisheries (IGB), Berlin**  
provided by Dr Sarah Poynton, Guest Scientist, [spoynton@igb-berlin.de](mailto:spoynton@igb-berlin.de)  
and [spoynton@jhmi.edu](mailto:spoynton@jhmi.edu)

The renaissance of interdisciplinary fish parasitology research at the Institute for Freshwater Ecology and Inland Fisheries is focussed on ultrastructure and pathogenicity, ecology and immunity.

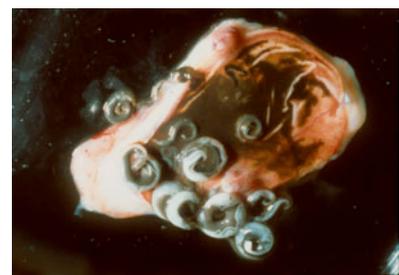
### Protozoan Parasites

**Dr Sarah Poynton**, a Guest Scientist from Johns Hopkins University in the USA, is expanding her work on pathogenic diplomonad flagellates (*Spironucleus* spp.) from commercially important fish. The focus of this research is the comprehensive characterisation, via scanning and transmission electron microscopy, of different flagellate species affecting salmonids, in order to provide accurate host and geographical records (Poynton & Sterud, Guidelines for species descriptions of diplomonad flagellates from fish, Journal of Fish Diseases, in press). It is emerging that some particular host/flagellate combinations are associated with significant chronic morbidity and mortality, others with significant acute mortality, while others are benign. *In vitro* culture will be used to grow and harvest organisms, for use in experimental infections and for molecular characterisation. Sarah's research is being done in close cooperation with **Dr Erik Sterud** at the Veterinary Institute in Oslo, Norway (Erik was recently also a Visiting Scientist at IGB, Berlin), **Mr Mohammed Fard** (MSc student from Humboldt University in Berlin), and other colleagues in Japan, Scotland, USA, Germany, and Central America.

### Metazoan Parasites

**Dr Michael Pietrock** is working on the impact of natural and anthropogenic factors on parasitic infestation, particularly the impact of top-down biomanipulation on endohelminths of juvenile roach, *Rutilus rutilus*, and perch, *Perca fluviatilis*.

**Dr Klaus Knopf** continues his research on the immune response of eel to the swimbladder nematode, *Anguillicola crassus* (Knopf et al., 2000, Dis. Aquat. Org. 42: 61-69; Knopf et al; 2000, Dis. Aquat Org. 43: 39 - 48). In aquaculture, the nematode is more pathogenic in novel hosts such as the European eel, *Anguilla anguilla*, and the American eel, *Anguilla rostrata*, than in the original host, the Japanese eel, *Anguilla japonica*. A central question in understanding this difference is the role of the different host immune systems in regulating parasite infection. Klaus is also interested in the role of parasites as stressors in fish, a little investigated topic. It is known that establishment of



parasite infections is determined, in part, by interaction of the stress response and the defense mechanisms of the fish. Research is focussed on the induction of stress during the early phase of an infection. Currently Klaus is testing if carp and *Diplostomum* are a useful host/parasite system for investigating this topic.

In addition to research, we also provide practical training for undergraduate and graduate students, teach classes in parasitology as part of the "Fishery Science and Aquaculture" Masters course at Humboldt University in Berlin, and provide occasional diagnostic service to the local community.

We look forward to hearing from you, please contact us!

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## MÉXICO

provided by Scott Monks, [smonks@uaeh.reduaeh.mx](mailto:smonks@uaeh.reduaeh.mx)

It has been a busy year for parasitologists in México. While parasitologists had no national conference this year, the national zoological congress will meet later this year and will undoubtedly be host to presentations by various parasitologists.

The First National Reunion of Parasitology Collections was held in June 2001. It was organised by the curatorial staff at the Colección Nacional de Helminthos, Laboratorio de Helminthología, Instituto de Biología, UNAM (with additional funds provided by the Comisión Nacional para el Conocimiento y uso de la Biodiversidad [CONABIO]) for the primary purpose of bringing together all of the curators of collections of parasites located in México. Additionally, it gave the Institute the opportunity to have an open house for the newly completed buildings housing the library, investigator's offices and laboratories. A dedication service was planned in honour of Margarita Bravo-Hollis, whose career work has contributed an impressive number of publications concerning almost every group of parasitic worm, but with a great proportion focusing on helminths of fishes. However, at the last minute health problems kept the honoured guest at home, lessening the festive spirit of the occasion. The conference was attended by representatives of 10 parasite collections (in alphabetical order: **Roberto Javier Almeyda-Artigas, Ignacio Cid del Prado-Vera, Leticia García-Magaña, Luis García-Prieto, María del Carmen Gómez del Prado, Blanca Jaimes-Cruz, Rafael Lamothe-Argumedo, Virginia León-Regàgnon, Serapio López-Jiménez, Hugo Mejía-Madrid, Scott Monks, David Osario-Sarabia, Gerardo Pérez-Ponce de León, Raúl Pineda-López, Griselda Pulido-Flores and Víctor Vidal-Martínez**), as well as various students and special guests.

Besides having the opportunity to discuss our research programmes on an informal basis, the conference included presentations concerning collection holdings by each of the curators. The meeting also provided the opportunity for formal discussions concerning collection security, the destiny of specimens in the case where existing collections are dissolving, the Biodiversity Database being set up by CONABIO, and the ever-present problem of obtaining funds. In my opinion, one of the most important results of the conference was the agreement by curators to begin placing copies of the holdings of each collection in care of the national collection, so that these data will be available to other investigators in the future. Although this process will likely take at least a year or so to

complete because of differences among collections in database styles and types, it should be of tremendous help to those looking for material from specific regions of México.

Roberto Javier Almeyda-Artigas (Lab. de Sanidad Acuícola y Parasitología Molecular, Univ. Auto. Metropolitana-Xochimilco, D.F.) and his laboratory are continuing their work on gnathostomiasis and, as presented at the Curator's conference, his laboratory now has the most comprehensive collection in México of material relating to gnathostomiasis.

Members of the Laboratory of Helminthology-UNAM (Rafael Lamothe-Argumedo, Gerardo Pérez-Ponce de León, Luis García-Prieto, **Guillermo Salgado-Maldonado**, David Osario-Sarabia, and Virginia León-Régagnon) happily completed the move to the new installation, although each commented that it would take some time to get "comfortable" in the new buildings. (pictured left to right: R. Lamothe-Argumedo, Gerardo Pérez-Ponce de León, Griselda, David Osorio-Sarabia, and Luis García-Prieto)



A recent compilation of information titled "Metazoan parasites in the neotropics: a systematic and ecological perspective" edited by Dr Salgado-Maldonad, A. N. García-Aldrete and Víctor M. Vidal-Martínez (CINVESTAV-Merida) was published by the University and is available from the Instituto de Biología (<http://biblio68.ibiologia.unam.mx/FullText/>). The book contains chapters authored by international experts on various groups of parasites and provides extensive information on the systematics and biogeography of species from the neotropics.

Victor Vidal-Martínez (Lab. de Parasitología, CINVESTAV-IPN, Merida, Yucatán) is continuing work on parasites of freshwater fishes, with an emphasis on fish of economic importance in the Yucatan Peninsula. He and members of his laboratory have been investigating the helminth community in *Cichlasoma urophthalmus* from the Yucatán Peninsula, México (details available from Dr Vidal-Martínez, [vvidal@kin.ciemer.CONACYT.mx](mailto:vvidal@kin.ciemer.CONACYT.mx)).



Scott Monks (Centro de Investigaciones Biológicas, Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico), and Griselda Pulido-Flores (pictured left), moved from El Colegio de la Frontera Sur, Quintana Roo, to UAEH in the more central state of Hidalgo. Griselda is continuing her work on the phylogenetic relationships of monogeneans from stingrays. The Consejo Nacional de la Ciencia y Tecnología (CONACYT) awarded a "visiting scientist" grant to Griselda to fund a visit (Jan. and Feb. 2001) to the Harold W. Manter Laboratory, University of Nebraska State Museum. She and Scott were warmly welcomed by **Dr Scott Gardner** and other laboratory members.

The trip also provided the opportunity to discuss some aspects of the systematics of nematodes of Mexican fishes with **Anindo Choudhury** (pictured right) who has a position in the U.S., and is working on several projects with Gerardo Pérez-Ponce de León (UNAM). While at the HWML, there also was time to discuss the dissertation project of Agustín Jiménez-Ruíz, who will soon be finishing his PhD studies at the Univ. of Nebraska-Lincoln and beginning the search for a postdoc or permanent position.





Scott Monks (pictured left), in collaboration with several other investigators, has finished an inventory of the parasites of the fishes of Bahía de Chetumal, QR, and is now concentrating on preparing the results of the study for publication. Scott also spent a fruitful 2 months stay at the HWML and later attended the Acanthocephalan Workshop in Finland.

**Raúl Pineda-López** (Lab. de Parasitología, Univ. Auto. de Querétaro, Querétaro) and members of his laboratory are studying the parasites from freshwater fishes of Querétaro and the problems that introduced parasites present for conservation of endemic fishes. At the conference of collections of parasites, Dr Pineda-López reported that they have encountered a great number of endemic species within the area and expect that the studies will provide valuable information for biogeographic studies.

María del Carmen Gómez del Prado (Dept. de Biología Marina, Univ. Auto. de Baja California Sur, B.C.S.) is continuing her work with parasites of fishes of the Gulf of California and is focusing on development of the collection of parasites of which she is curator.

## UKRAINE

provided by Albina Gaevskaya, [alviga@ibss.iuf.net](mailto:alviga@ibss.iuf.net)

The following report concerns the activity of 2 young colleagues in our department. Last year **Irina Belofastova** began a study on acanthocephalans of fish from the Black Sea because detailed morphological descriptions of most known acanthocephalan species in this region and data on their life-cycles are lacking. Identification of *Acanthocephalus* species from the Black Sea has proven difficult due to the out-of-date "Key" of Meyer (1933). This genus needs revision. Irina has completed detailed descriptions and new illustrations of 3 common species, *Telosentis exiguus*, *Acanthocephaloides incrassatus* and *Golvanacanthus blennii*. These species have been found in hosts that represent new host records. *Acanthocephaloides rhytidotes* has been found in the Black Sea for the first time. This species has not been recorded since it was described in 1904 by Monticelli as *Echinorhynchus rhytidotes* from *Solea impar*. Transfer of *Echinorhynchus rhytidotes* to the genus *Acanthocephaloides* is supported. **Nataly Pronkina** has started her investigation of the life-cycle of *Telosentis exiguus*. The main aim of her work is to study the community structure of parasites in the different ecological niches of mullets, namely the gills, skin and intestine and to determine whether abiotic and biotic factors influence community structure. The study will focus on a haader species, *Mugil soiuje*, which has been introduced recently into the Black Sea. She seeks to study the factors that determine the structure of the parasite assemblages, paying particular attention to parasite exchanges between the local mullets and the introduced haarder mullet in areas where they both co-exist.

## UNITED STATES

### Gulf Coast Research Laboratory, The University of Southern Mississippi, Ocean Springs, Mississippi

provided by Robin Overstreet, [robin.overstreet@usm.edu](mailto:robin.overstreet@usm.edu), and Ash Bullard, [ash.bullard@usm.edu](mailto:ash.bullard@usm.edu)

GCRL, which now houses the Department of Coastal Sciences of The University of Southern Mississippi, operates an extremely active program dealing with fish parasites. **Professor Robin M. Overstreet, Prof Richard Heard, Dr Jeffrey Lotz, and Dr Reg Blaylock** work together on many projects and individually on others. For example, Robin works with Richard on digenean life cycles and sturgeon parasites; with Jeff and Reg on parasites of red snapper and cobia, with an emphasis on those parasites that hamper aquaculture and affect enhancement of fish on established reef sites; with **Dr Peter Olson** of The Natural History Museum (NHM) (London) on molecular aspects of a variety of digeneans and cestodes; and with **Dr Harry Palm** at the Center for Coastal and Marine Resource Studies at Bogor Agricultural University (Indonesia) on trypanorhynch. Robin is also working on parasites of the spotted seatrout and a series of myxosporeans with Reg.

The group's graduate program is presently funded primarily with National Marine Fisheries Service (NMFS) funding on aquaculture of fishes, with a present emphasis on red snapper, and US Department of Agriculture funding on shrimp aquaculture. Disease is a limiting factor in culture of both shrimps and fishes. **Chuck Blend's** dissertation problem focuses on a combination of morphological features and DNA sequences (18S, 28S, COI, ITS genes) to associate metacercarial and adult stages of strigeoids parasitizing the pond-raised catfish that are fed on by predatory birds such as the white pelican and double-crested cormorant. He plans to direct future interests to the descriptive, ecological, and molecular aspects of deep-sea parasites. **Ash Bullard** is in the final stages of a Master's thesis and is continuing on as a PhD student. Research in both cases involves the systematics and ecology of blood flukes (Sanguinicolidae) of fishes from the northern Gulf of Mexico and adjacent waters. In addition to this, he is working on similar aspects of fish monogeneans and sturgeon parasites. **Steve Curran** has been a technician for Robin but is now initiating a doctoral study involving the taxonomy and systematics of digeneans from fishes in the Amazon River system. He is interested in the systematics and origins of digeneans of fishes in general. He has also been involved with joint studies on digenean (Bucephaloidea, Atractotrematidae, Haploporidae) chapters for the "Keys to the Trematoda," CAB International, edited by David Gibson, Rod Bray, and Arlene Jones; experimental infections of diplostomatid digeneans; taxonomy of leeches and pentastomes; identifying cryptic species of Caryophyllidea; and taxonomy of a variety of new digenean species. **Kristy Smedley** finished a thesis on monorchiid life histories and is now working for Professor Sharon Patton (College of Veterinary Medicine, University of Tennessee). Jeff's program emphasizes models to assess epidemiological aspects of disease, particularly those caused by viruses in shrimp. Papers on this topic have been or are now being published with his recent doctoral student **Dr Andy Soto**, who has just started a new position in the faculty at Texas A&M University at Kingsville. Richard's master's student **Micah Bakenhaster** has just initiated a study dealing with cymothoid isopods. **Reg Blaylock's** programme focuses on the ecology of marine parasites and how patterns in ecological communities can be used in the study and management of fisheries. He is also interested in investigating the effects of parasites on the population dynamics of fish, particularly as they may relate to management of fish health in aquaculture.

Several visitors periodically conduct research at the Laboratory. For example, **Dr Sergio R. Martorelli** from (Centro de Estudios Parasitológicos y Vectores) La Plata, Argentina spent 2 years working on digenean life cycles, parasites of crustaceans, and other parasites; he is now back at his home institution. **John Crites**, Professor Emeritus from Ohio State University, spends a couple months a year investigating the taxonomy of nematodes, with a present emphasis on cucullanids. Also spending a month or so annually, **Eugene Foor**, Professor Emeritus from the University of Pittsburgh at Johnstown (Pennsylvania), investigates ultrastructural aspects of reproductive structures in parasites, as well as features of disease-causing micro-organisms. More information on publications and Laboratory activities can be found at <http://www.coms.usm.edu> by clicking on graduate students or faculty

### **University of the Pacific, Stockton, California**

provided by Professor Emeritus Fuad Michael Nahhas, [fnahhas@uop.edu](mailto:fnahhas@uop.edu)

**Professor Fuad Michael Nahhas** retired from teaching at the University of the Pacific, Stockton, California in May 2000. Since then he has devoted his time to research, chiefly on the systematics of digeneans. He is not taking graduate students any longer but does have 4 undergraduate students that he trains. The Department of Biological Sciences of the University of the Pacific is a small department and typical of what has been happening in many biology departments, emphasis is on molecular aspects of biology. They hope to replace Dr Nahhas with someone who will continue the tradition of teaching Parasitology but perhaps using molecular techniques. Dr Nahhas is trying to complete studies on a digenean collection from the Fiji Islands made in 1992, part of it in collaboration with **Dr. Rodney Bray** (NHM; London); another collection from the Arabian Gulf made by and in collaboration with **Professor Otto Sey** of Hungary between 1993 and 1996, from the Kuwaiti coast; and on *Stephanostomum* species collected by **Professor Fathy Saoud** of Qatar University, from the Qatari coast. Also long overdue is work on digeneans from the Kuwaiti coast collected in 1979-1980 by **Dr Faiza Al-Yamani** of the Kuwait Institute of Scientific Research. The latter collection should be of interest from an ecological point of view since it was made before the Gulf War of 1990 and the "Sey" collection.

### **Oregon State University**

provided by Dr Michael Kent; [Michael.Kent@orst.edu](mailto:Michael.Kent@orst.edu)

Three laboratories at Oregon State University are actively conducted research in fish parasitology.

**Laboratory of Dr Michael Kent ([Michael.Kent@orst.edu](mailto:Michael.Kent@orst.edu) ) Director: Center for Fish Disease Research Department of Microbiology: various projects**

#### **Phylogenetics of Multivalvulid Myxozoa**

Using molecular systematics, **Chris Whipps** ([whippsc@bcc.orst.edu](mailto:whippsc@bcc.orst.edu)), a PhD student in Dr Kent's laboratory, is using rDNA sequence analyses to elucidate the relationships of various fish myxozoans in the the order Multivalvulida. A focus of his research is comparing various isolates of *Kudoa thyrsites* from around the world.

#### **Zebrafish Health**

Dr. Kent is co-investigator on NIH-funded Zebrafish International Resource Center, University of Oregon. Zebrafish (*Danio rerio*) have become a very important animal in

genetic and embryology research, which has led to the development of zebrafish colonies at several research institutions. We are studying two parasites that are problematic in zebrafish colonies: *Pseudoloma neurophilia*, a central nervous system microsporidian associated with a wasting syndrome, and *Pseudocapillaria tomentosa*, which causes severe gut lesions.

### **Rockfish/Ling Cod Diseases**

We are investigating diseases of rockfishes (*Sebastes* spp.) collected off the coasts of California, Oregon, Washington and British Columbia. Two diseases have been recognised in high prevalence; *Ichthyophonus* (a protistan parasite that was previously identified as a fungus) and *Mycobacterium* spp. In a survey done from Oregon through to British Columbia, we found about 50% infection by *Ichthyophonus* in yellow tail rockfish (*S. flavidus*) and Pacific Ocean perch (*S. aulutus*).

### **Laboratory of Dr Jerri Bartholomew ([bartholj@orst.edu](mailto:bartholj@orst.edu)), Department of Microbiology: myxozoan parasites**

#### ***Myxobolus cerebralis***

Two separately funded projects are aimed at trying to understand the ecology of *Myxobolus cerebralis* in natural systems. The first, in collaboration with **Dr Paul Reno** ([paul.reno@hmsc.orst.edu](mailto:paul.reno@hmsc.orst.edu)) at OSU Hatfield Marine Science Center, examines the role of the parasite in enzootic areas of eastern Oregon and its effects on both the resident and anadromous salmonid species. A second project, in collaboration with Oregon Department of Fish and Wildlife, is directed at determining the risk of introducing *M. cerebralis* into downriver watersheds and assessing potential risks for native populations. A third collaborative project, led by Dr Kent, looks at the potential for infection by a relatively non-virulent myxobolid (*Myxobolus arcticus*) to provide non-specific protection against development of whirling disease.

#### ***Ceratomyxa***

A long-term study is directed toward identification of the molecular basis of resistance against the parasite. This work is in collaboration with **Dr Gary Thorgaard** (Washington State University) and **Dr Don Campton** (USFWS). Both outbred and clonal lines of resistant and susceptible trout strains have been produced and the trait is being mapped to chromosomal regions on a trout genetic map. Another study, in collaboration with **Dr Kym Jacobsen** (NMFS) examines the prevalence of *C. shasta* infection in salmonid smolts migrating out of the Columbia River estuary.

### **Laboratory of Dr Mike Blouin ([blouinm@bcc.orst.edu](mailto:blouinm@bcc.orst.edu)), Department of Zoology: parasite population genetics**

**Charles Criscione** ([crischar@bcc.orst.edu](mailto:crischar@bcc.orst.edu)), a PhD student, is just beginning his doctoral research, but plans to integrate population genetics theory and hypotheses from ecological parasitology to determine factors that influence population genetic structure (PGS) in parasites. Parasite PGS is important for evolutionary processes such as speciation, adaptation to host defenses, and the evolution of drug resistance. DNA sequence data will be used to examine the PGS of several trematode species infecting salmonids of the US Pacific Northwest.

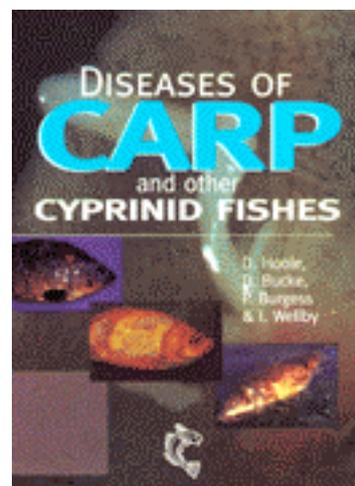
## BOOKS

### **Diseases of Carp and Other Cyprinid Fish**

**Editors: David Hoole, David Bucke, Peter Burgess, Ian Wellby**

2001. Blackwell Science. Hardback ISBN 0852382529; 180 illustrations, 280 pages.  
Price £49.50

Cyprinids rank as one of the most commercially important groups of freshwater fishes and are exploited for many purposes; as a human food source, especially in Europe and Asia; as sport fish; and as ornamental fish for ponds and aquaria. Certain species are also cultured as bait fish and several of the small cyprinids such as the zebra fish have become internationally accepted laboratory models for toxicology testing and molecular research. A thorough understanding of cyprinid health and diseases is fundamental to the successful management and exploitation of these fishes for freshwater fisheries, pisciculture and ornamental productions.



This practical guide to disease diagnosis, prevention and control includes numerous colour plates and covers a comprehensive array of diseases - infectious and non-infectious - of cultivated and wild cyprinids.

### **Monogeneans of Chinese marine fishes**

**Zhang J., Yang T. & Lin L.**

2001. Agriculture Press, No. 2 Nongzhanguan Beilu, Chaoyang District, Beijing 100026, China. Hardback ISBN 7-109-06783-1; 400 pages. In Chinese with English descriptions of new species.  
Price \$US 28.

### **Hand-book on diseases and parasites of marine and oceanic food fishes**

**Gaevskaya A. V.**

2001. Sevastopol: Ekosi-Gidrofisika. Hardback and softback ISBN 966-02-2083-9; 262 pages. Price Unknown.

This book contains information about the main infectious, invasive and non-contagious diseases and parasites of marine and oceanic fishes. It includes details of disease distribution, pathogenic states of different disease agents, and the recommendations on the possible processing of diseased fishes. Methods of sampling fish for parasitological diseases are discussed. The handbook includes a glossary of common parasitological terms and a taxonomic index which lists common names of fish and scientific and common names of diseases and parasites. The book is aimed at specialists in fishery and fish-processing industries, veterinarians, fishmongers and fish and veterinary students.

### **Fish Monogenea of Kazakhstan and Middle Asia**

**E.V. Gvozdev & D.U. Karabekova**

2000. Alma Aata: Tethys, 122 pp. ISBN 9965-9054-9-5.

**Keys to the Trematoda. Volume 1.**  
**Eds D.I. Gibson, A. Jones & R.A. Bray**

Early 2002, 544 pp. Wallingford, Oxon: CABI Publishing. ISBN 0 85199 547 0, c. £95 (US\$ 175).

This book, in three volumes, presents a detailed revision of the systematics and taxonomy of the trematodes, with keys for the identification of these parasites at the superfamily, family, subfamily and generic levels.

Of interest to fish parasitologists are the following chapters or groups of chapters: Azygioidea (D. Gibson); Bucephaloidea (R. Overstreet & S. Curran); Diplostomoidea (K. Niewiadomska); Fellodistomidae (R. Bray); Hemiuroidea (D. Gibson); Sanguinicolidae (J. Smith); Transversotrematoidea (T. Cribb).

## **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](mailto: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, 2002.

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 will also be welcome. However, bear in mind that the Newsletter is intended for any news, notices, comments, etc. that you feel would be of interest to the world's ichthyoparasitologists, rather than detailed publication lists. 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**