

International Ichthyoparasitology Newsletter No. 12 January 2005

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EDITORIAL

The field of ichthyoparasitology is obviously thriving given the number of upcoming conference notices, meeting reports and the research news I received. I welcome two new Regional Representatives; for China, Dr Yang Tingbao and for Egypt, Dr Reda Mohammed El-Said Hassanine. Sadly, 2004 saw the passing of Jack Llewellyn, a notable monogenean researcher and Hisao Arai, Canadian fish parasitologist (see below).

Anyone wishing to contribute to the next issue of the Newsletter (Number 13) should note that the deadline date for submission is **November 15, 2005**. 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.diplectanum.dsl.pipex.com/newsletter/>

ANNOUNCEMENTS

FIFTH INTERNATIONAL SYMPOSIUM ON MONOGENEA



We are delighted to announce that the Fifth International Symposium on Monogenea (ISM5) will be held August 8-12, 2005, at **Zhongshan University, Guangzhou, China**. All are welcome to participate in the meeting, which is the fifth in a successful series on this unique group of parasites.

Registration details and other useful information will shortly be available at:

<http://www.diplectanum.dsl.pipex.com/ism5/> Participation in this meeting is encouraged for all specialists and students working on the Monogenea. The participation of postgraduate students is particularly welcomed; funds to cover the registration costs of small number of foreign students will be available. This is the first time that this meeting has been held in Asia and it is hoped that it will be well supported and a great success.

MYXOZOAN WORKSHOP

Preliminary Announcement and Call for Papers

To be held in conjunction with the 12th EAFP
International Conference Copenhagen, Denmark,
September, 2005



A special session will be held in conjunction with the 2005 meeting of the European Association of Fish Pathologists (EAFP) to provide an overview of contemporary topics associated with myxozoan infections of fishes. The goal of the session is to provide a forum in which myxozoan researchers can come together to share information and to encourage international collaboration. The special session will tentatively include submitted presentations, a hands-on specimen sharing workshop and a round table discussion of current topics. Presentation topics may include genome dynamics in Myxozoa, freshwater vs. marine myxosporean life cycles and transmission strategies, epidemiology, novel techniques for control of myxosporean infections in aquaculture, etc.

The organizing team is currently accepting suggestions for topics for the hands-on workshop and round table discussion, and soliciting interested presenters to begin development of an agenda for the presentation and poster sessions. If you plan on attending this meeting and presenting either a poster or paper in this session, please provide us with a preliminary title; abstracts will later be submitted according to guidelines provided by the EAFP organizing committee. Respondents to this initial call will be notified when a dedicated website becomes active and additional information available.

Please convey suggestions for topics, presentation titles and requests to be placed on the Myxozoan Workgroup list to either:

Error! Bookmark not defined. <jerri.bartholomew@oregonstate.edu>

Arik Diamant <diamant@agri.huji.ac.il>

MARIE CURIE FELLOWSHIP IN EXPERIMENTAL FISH PARASITOLOGY AVAILABLE AT THE UNIVERSITY OF VALENCIA (SPAIN)

A Marie Curie Host Fellowship is available at the Marine Zoology Unit (www.uv.es/cavanilles/zoomarin/index.htm) of the Cavanilles Institute of Biodiversity and Evolutionary Biology (CIBEB). The CIBEB is a multidisciplinary research institute of the University of Valencia currently staffed by c 120 researchers and is furnished with modern research facilities for biodiversity and evolutionary studies. The fellow will participate in the project *Parasite Pathogens in New Species of Mediterranean Aquaculture: an Experimental Approach* (FP6-MTKD-CT-2004-003175) within the EU's 6th Framework Programme.

The appointee will design and carry out research on life cycles and transmission of blood flukes and monogeneans infecting the greater amberjack (*Seriola dumerili*) and other Mediterranean finfish species at the Experimental Aquaculture Plant of the University of Valencia. The position is offered for 2 years. Salary will be around EUR 41,600 pa. We are looking for a highly motivated, entrepreneurial fellow with experience in experimental fish parasitology and other areas relevant to the project. Criteria for eligibility are in accordance with the Marie Curie Fellowship Scheme (see http://europa.eu.int/comm/research/fp6/mariecurie-actions/indexhtm_en.html for details). Applicants should hold a doctorate or have over 4 years of full-time postgraduate research

Applicants must be nationals of a EU Member State or an Associated State or have been permanent residents in the EU for at least the last 5 years.

Applications in triplicate must include a CV with list of publications, copies of up to 5 selected publications and the names and addresses of 2 referees. Address applications and further enquiries to:

Dr Juan Antonio Balbuena
Cavanilles Institute of Biodiversity and Evolutionary Biology
University of Valencia
P.O. Box 22085, E-46071-Valencia, Spain
Tel.: +34 96 354 3658, Fax: +34 96 354 3733
E-mail: j.a.balbuena@uv.es

We regret that applications cannot be made by e-mail or fax.

Closing date: 28 February 2005.

The University of Valencia is an equal opportunities employer and welcomes applications from suitably qualified people from all sections of the community. Female candidates in particular are encouraged to apply.

**FIFTH INTERNATIONAL WORKSHOP ON
CESTODE SYSTEMATICS AND PHYLOGENY
České Budějovice, Czech Republic
July 18-22, 2005**

FIRST ANNOUNCEMENT

Hosted by: Institute Of Parasitology, Academy of the Sciences of the Czech Republic, České Budějovice, Czech Republic.

Organised by: Laboratory of Parasitic Flatworms (head Tomáš Scholz), Institute of Parasitology, AS CR <http://www.paru.cas.cz/structure/lpf/index.php>

The first meeting on cestode systematics and phylogeny was organised by Jean Mariaux and Claude Vaucher in 1993 in Geneva, Switzerland. This meeting enabled informal and intensive discussions among leading specialists in this research field and established a tradition of cestode workshops. The second workshop was organised in 1996 in Lincoln, Nebraska, USA, by Scott Gardner, Eric Hoberg and Ron Campbell. Several working groups discussed suitable characters for subsequent phylogenetic analyses of most cestode orders. A series of papers that summarised results of phylogenetic analyses have since been published in *Systematic Parasitology* in 1998 and 1999. The third workshop was organised in Sofia, Bulgaria in 1999 by the Boyko B. Georgiev group. Among others, the terminology of cestode larvae was discussed intensively, which enabled Lenta Chervy to summarise the main conclusions and publish them in her paper in *Systematic Parasitology* in 2002. The fourth and lastest workshop took place in Storrs, Connecticut, USA in 2002. This meeting was prepared by Janine Caira and her team and facilitated discussions concerning new working hypotheses about apical structures and microtriches, surface structures typical of cestodes. Perhaps most importantly, the preparation of a worldwide, online cestode database (<http://129.237.147.148/PEETII/uconnPEETII.html>) was formulated and launched.

The fifth workshop on cestode systematics and phylogeny will be hosted by the group of T. Scholz from the Institute of Parasitology, Academy of Sciences of the Czech Republic

(www.paru.cas.cz) in České Budějovice, Czech Republic, July 18 -22, 2005. Further information on this workshop including accommodation and travel details can be obtained from the workshop website <http://www.paru.cas.cz/workshop/> or by contacting:

Tomáš Scholz

Institute of Parasitology

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MEETING REPORTS

2-DAY WORKSHOP UNDER THE RESEARCH NETWORK SUSTAINABLE CONTROL OF FISH DISEASES IN AQUACULTURE (SCOFDA)

November 3 – 4, 2004, with a full day devoted to monogenean research provided by Kurt Buchmann, kub@kvl.dk

The Research School SCOFDA (Sustainable Control of Fish Diseases in Aquaculture) was established in 2001 by support from the Danish Agricultural and Veterinary Research Council. It is based at the Royal Veterinary and Agricultural University, Frederiksberg in Denmark, but the board comprises members from various Danish research institutions and universities [Danish Food and Veterinary Research (DFVF), Danish Institute of Fisheries Research (DFU), Danish Institute for Agricultural Science (DJF), University of Southern Denmark (USD), Danish Technical University (DTU)]. The main purpose of the research school is to educate researchers and support a network of expertise in fields related to the diagnosis and control of fish diseases in aquaculture. Thus, fish bacteriology, fish virology, fish parasitology, fish genetics and fish immunology are the main topics of the research school. Every year two workshops about one or more of these issues are organised in Denmark. In addition, Ph.D. courses associated with these workshops are conducted.

In November 2004, a two-day workshop was held at the Royal Veterinary and Agricultural University at Frederiksberg. The first day was devoted entirely to questions related to monogenean parasites. The Australian specialists **Ian Whittington**, **Leslie Chisholm** and **Craig Hayward** presented excellent talks on the biology and life cycle of monogeneans, with special focus on their impacts on fish in captivity. These talks showed the increasing importance of monogeneans for fish health in aquacultured species and public aquaria. In addition, specific notes on diagnostic problems and solutions, pathogenicity and possible control methods were highlighted. The afternoon sessions focussed on the genus *Gyrodactylus*. This genus contains nearly 400 described species, but it has been suggested that the total number of species within the genus may be more than 20,000! Special emphasis and attention has been devoted to the species *Gyrodactylus salaris*, which was introduced to Norway in the 1970s. The parasite was described by **Göran Malmberg** in 1957. However, our knowledge of the first finding of the worm and the subsequent actions in this regard during the 1950s has been limited. Göran Malmberg kindly provided details about the discovery and description of *G. salaris* in a special invited lecture. Also the development in the field after the description was treated by Göran Malmberg. Following its introduction in Norway, the parasite has spread to a total of 45 salmon rivers. The affected salmon populations have experienced a serious decrease and the various measures to diagnose and control the situation in Norway was reported by **Tor Atle Mo**. This also included the latest investigations on parasite eradication systems

implemented in the field. It is known that the susceptibility of East Atlantic and Baltic races of salmon differ considerably. This may be related to the historical isolation of the different races of the Atlantic salmon during the post-glacial colonisation of areas with or without the parasite present. This issue was treated by **Eric Verspoor**, who described various possible immigration routes of salmon into the Baltic region after the last glacial period. The recent work on localisation of genes associated with resistance in salmon was presented by **John Gilbey**, who conducted a range of crosses and back-crosses with resistant and susceptible strains of salmon. Then **Caroline Thompson** continued in this field by presenting problems and solutions when identifying genes associated with this disease. The genomics of *G. salaris* was presented by **Catherine Collins**, who showed that a range of molecular tools are now available to differentiate between different species and strains within the genus *Gyrodactylus*. Basic biological studies on the ability of *G. salaris* and *G. derjavini* to select their specific hosts (Atlantic salmon and rainbow trout, respectively) were described by **Thomas Bjerre Larsen**. Rainbow trout skin responses following colonisation with *G. derjavini* were treated by **Thomas Lindenstrøm**. He showed that a range of events, including an intricate network of cytokines, is involved in the host response of rainbow trout against this gyrodactylid. The main conclusion was that the response is highly regulated. The following paper by **Kurt Buchmann** presented recent studies on the differing response of East Atlantic and Baltic salmon towards *G. salaris* infections. It was clearly shown that the Conon salmon strain from Scotland is extremely susceptible to infections whereas Swedish salmon from the Ume river has a very low susceptibility. Molecular studies have indicated that unregulated hyper-reactivity of the East Atlantic salmon strain provides the basis for uncontrolled build up of parasites on the skin of Scottish salmon. In contrast the inflammatory skin reaction is low in naturally resistant salmon. This was a surprising discovery but could be explained by the importance of the mucous microenvironment of the parasite and its association with some inflammatory reactions. Subsequently **Jane Sarginson** presented corresponding work on infected salmon reinfected by *G. salaris* 28 days post infection that partly supported the previous observations.

The second day of the workshop offered lectures and discussions about myxosporean parasites in marine fishes. Recent discoveries on intermediate hosts were presented by **Marianne Køie**. Following these lectures on parasitic diseases in fish, numerous papers concerned with viral and bacterial diseases were presented by other Danish colleagues.

A full report with abstracts and a full paper by Göran Malmberg will be published by SCOFDA in December 2004.

Kurt Buchmann
Organiser and research school leader

AUSTRALIAN SOCIETY FOR PARASITOLOGY ANNUAL MEETING

Freemantle, Western Australia

September 25 – 30, 2004

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

The *Australian Society for Parasitology* holds an annual conference. In 2004, 10 of 127 presentations focused on fish parasites. These included: a broad view of schistosome evolution and their affinities with blood flukes from fish hosts by **Tom Cribb** (University of Queensland, Brisbane); studies of parasite communities of reef fishes by Tom's PhD students **Gabriela Muñoz** (on labrids) and their collaborators, **Lexa Grutter** (University of

Queensland, Brisbane) and **Terrence Miller** (on lutjanids). PhD student **Shokoofeh Shamsi**, **Ian Beveridge** and **Robin Gasser** (University of Melbourne) presented a paper on characterisation of larval anisakids using a combined morphological and molecular approach. **Vanessa Glennon** (University of Adelaide) discussed studies from her Honours project in 2003 on invasion strategies of three species of Monogenea from different sites on *Trygonorrhina fasciata* (Rhinobatidae) in South Australia in collaboration with Leslie Chisholm and Ian Whittington. Four papers focused on parasites in marine aquaculture, reflecting the fact that fish farming is one of the fastest growing components of the Australian economy together with wine-making. These two industries make a wonderful combination for those who love to eat and drink! Craig Hayward (University of Tasmania-Launceston, but based in Port Lincoln, South Australia) talked about metazoan parasites of farmed southern bluefin tuna (*Thunnus maccoyi*) in collaboration with PhD student **Hamish Aiken** and **Barbara Nowak**; PhD student **Geoff Grossel** (University of Tasmania-Launceston) presented work on *Kudoa neurophila* in farmed striped trumpeter (*Latris lineata*). From the University of Adelaide, PhD student **Kate Hutson** presented some of her PhD work on parasite interactions between wild and farmed kingfish (*Seriola lalandi*) and **Rissa Williams** talked about trials using praziquantel administered orally against the Monogenea *Zeuxapta seriolae* and *Benedenia seriolae* in sea-caged kingfish from her PhD work, both investigations in collaboration with **Ingo Ernst**, **Clinton Chambers** and Ian Whittington.

XVI CONGRESO NACIONAL DE PARASITOLOGY (CONAPAR)

provided by Scott Monks, smonks@uaeh.edu.mx and
Griselda Pulido-Flores, gpulido@uaeh.edu.mx

Ichthyoparasitologists from at least four institutions, Universidad Autónoma Metropolitana (UAM), Universidad Nacional Autónoma de México (UNAM), Centro de Investigaciones y Estudios Avanzadas del IPN (CINVESTAV) and the Universidad Autónoma del Estado de Hidalgo (UAEH) were strongly represented by at CONAPAR this year and there were a number of presentations and round-table discussions of interest to fish parasitologists.

Members of the laboratory headed by **Roberto Almeyda-Artigas** (right, Laboratorio de Sanidad Acuícola y Parasitología Molecular, UAM) presented several talks and posters concerning gnathostomiasis in México and its causative agent, members of the genus *Gnathostoma*. **E. Sánchez-Miranda**, **L. Carranza-Calderón**, **J. Gaspar-Navarro**, **Miguel Mosqueda-Cabrera**, and Roberto Almeyda-Artigas presented a poster that included details of a new type of third-stage larva of *Gnathostoma* from Veracruz, Mex. M.A. Mosqueda-Cabrera, R.J. Almeyda-Artigas, E. Sánchez-Miranda, and L. Carranza-Calderón discussed arrested development in *Gnathostoma binucleatum*.



Representing UNAM, **R. Rosas-Valdez** and **Gerardo Pérez-Ponce de León** (Laboratorio de Helmintología, Instituto de Biología, (IBUNAM)) presented information of the historic host-parasite relationships of ictalurids of México. **C. Alvarez-Guerrero** (FES Cuautitlán-UNAM) and **Rafael Lamothe-Argumedo** (Laboratorio de Helmintología, IBUNAM) discussed newly discovered intermediate hosts of *Gnathostoma* from Nayarit, Mex.



Investigators and their students of CINVESTAV presented several interesting works. **G.Rodríguez-Cortez** and **Victor Vidal-Martínez**

(left; CINVESTAV) reported on the potential interactions between intestinal helminths of *Chiclasoma pearsei* from Campeche, Mex. **A. Rodríguez-González** and V. Vidal-Martínez discussed the community of helminths of the blackcheek tonguefish, *Symphurus plagiusa*, from Campeche, Mex. Finally, **J. Violante-Gonzalez, M.L. Aguirre-Macedo**, and V. Vidal-Martínez presented a study on the temporal variation of metazoan parasites of sleeper goby, *Dormitator latifrons*, from Guerrero, Mex.

Students of the Centro de Investigación Biológicas, Universidad Autónoma del Estado de Hidalgo (CIB, UAEH) were well represented at CONAPAR. **Veronica Martínez-Sánchez, Berenice Aleman-Garcia**, and **Scott Monks** presented new records and a review of the Acanthocephala of marine fish of the Gulf of Mexico. **Kenia Ortega-Sánchez** and Scott Monks presented a poster on the histological morphology of *Floridosentis elongatus*, an acanthocephalan parasite of *Mugil* sp.

Presenters from other institutions also provided interesting talks. **Y.N. Montesinos-Fernández, M. Iglesias-Gutiérrez**, and **A.F. Luna-Peñalosa** (Laboratorio privado de Investigación Bioquímica y Microbiológica) discussed the parasites of cultivated cyprinids from impounds of Tlaxcala, Mex. **N. Argáez-García, Sergio Guillén-Hernández** (right), and M.L. Aguirre-Macedo presented the results of their study of the helminth communities of three commercially important species of fish from Yucatán, Mex.



Gerardo Pérez-Ponce de León led a round table discussion on “Analysis and perspectives of the helminthology of wild animals (including fish) of México” that included presentations by **Virginia León-Règagnon** (IBUNAM), Sergio Guillén-Hernandez (Universidad Autónoma de Yucatán), and **Luis García-Marquez** (Universidad de Colima). The themes presented included the application of molecular systematics to the study of wildlife (VL-R), the ecology of helminth parasites of Mexican wildlife (SG-H), histopathology of helminth parasites (LJG-M), and a synthetic presentation on the diversity and evolutionary biology of the helminth parasites of wildlife (GP-PDL).

A second round table discussion, headed by Victor Vidal-Martínez, on “Parasites as bioindicators of environmental impact” was equally interesting. **Kevin Lafferty** (USGS-USA) presented his work with fish parasites that use snails as intermediate hosts as



environmental indicators in estuaries. **M. Kuris-Armand** (University of California, USA) discussed how long-term changes in parasite assemblages provide clues to the overall state of their host communities. M. Leopoldina Aguirre-Macedo presented information on how hurricanes affect natural populations of digeneans. Victor Vidal-Martínez discussed the effects of aquatic contamination on the parasites and symbionts of marine organisms in the Gulf of Mexico. **John Janovy** (left, University of Nebraska-Lincoln, USA) presented an interesting paper on the parasite communities of small fish from

Nebraska waters.

For those interested in more details of CONAPAR, please contact Scott Monks (smonks@uaeh.reduaeh.mx) directly.

1^{RA} REUNIÓN MEXICANA DE BIOLOGÍA FILOGENÉTICA

Xalapa, Veracruz, Mexico, June 2004

At the 1^{ra} Reunión Mexicana de Biología Filogenética, Instituto de Ecología, Xalapa, Veracruz, **Dan Brooks** (University of Toronto, Canada) discussed historical biogeography and how fish parasites provide valuable information for biogeographical questions. Gerardo Pérez-Ponce de León (IBUNAM), **Hugo Mejía-Madrid** (Benemérita Universidad Autónoma de Puebla), and **Anindo Choudhury** (St. Norbert College, U.S.A.) presented a phylogenetic hypothesis for the American species of *Rhabdochona*, nematode parasites of freshwater fish. **R. Rosas-Valdez** (IBUNAM), A. Choudhury (St. Norbert College, USA), and G. Pérez-Ponce de León presented a phylogeny of the Corallobothriinae, cestode parasites of ictalurids.

Full information on this conference can be found at <http://www.ecologia.edu.mx/biofil2004/>. Be sure to download a copy of the abstracts, etc., while the site is still active.

UPDATES

WESTHER

A multidisciplinary approach to the identification of herring (*Clupea harengus* L.) stock components west of the British Isles using biological tags and genetic markers.

This project, funded by the EU Commission within the 5th Framework Programme, was described in Newsletter No. 11. The project is funded for a period of 3 years commencing 1 January 2003, so at the time of writing we are approaching the end of the second year. The objective is the stock identification of Atlantic herring in western European waters from the south-west of Ireland and the Celtic Sea to the north-west of Scotland, including the Irish Sea.

WESTHER is an international multidisciplinary project with partners in the UK, Ireland and Germany. The stock identification methods applied are: host and parasite genetics, host morphometry, otolith structure and chemistry, and parasites as biological tags. All of the different methods are applied to the same individual herring. The Scientific Coordinator of WESTHER is **Emma Hatfield** (FRS Marine Laboratory, Aberdeen, UK). Partners involved in the use of parasites as biological tags are: **Ken MacKenzie** and **Neil Campbell** (Department of Zoology, The University of Aberdeen, Aberdeen, UK); **Jimmy Chubb** and **Marcus Cross** (School of Biological Sciences, The University of Liverpool, Liverpool, UK); and **Carey Cunningham** and **Catherine Collins** (FRS Marine Laboratory, Aberdeen, UK).

To accommodate the requirements of partners in other disciplines, we agreed to restrict parasitological examinations to the viscera of herring, which we receive preserved in alcohol. Parasites recorded so far are: the coccidian *Goussia clupearum*; the myxosporeans *Ceratomyxa auerbachii* and *Myxobolus* sp.; two species of renicolid metacercariae, *Cercaria doricha* and *C. pythionike*; the adult digeneans *Brachyphallus crenatus*, *Derogenes varicus*, *Hemiurus luehei*, *Lecithaster confusus* and *Pronoprymna ventricosa* (a new host record); the anisakid nematodes *Anisakis* sp. (larvae) and *Hysterothylacium aduncum* (adults and larvae); the cestode *Lacistorhynchus tenuis* (plerocercoid); and the acanthocephalan *Echinorhynchus gadi*. The species selected as the most promising biological tags are the renicolid metacercariae, *H. luehei*, the nematode larvae and *L. tenuis*. Infection data from samples of juvenile, spawning and

mixed-stock aggregations of herring are currently being analysed and compared for indications of host relationships. A spin-off from the main project is a molecular study of renicolid metacercariae from herring and adult *Renicola* collected from the kidneys of seabirds. Adult worms from puffin, common guillemot and fulmar were found to be identical to *C. pythionike* from herring, but the avian hosts of *C. doricha* remain unknown. The results from this study will lead to some clarification of the confused taxonomy of *Renicola* spp.

For more information about WESTHER, visit our website at www.clupea.net/westher

AWARDS FOR DR RAFAEL LAMOTHE-ARGUMEDO AND MARGARITA BRAVO-HOLLIS

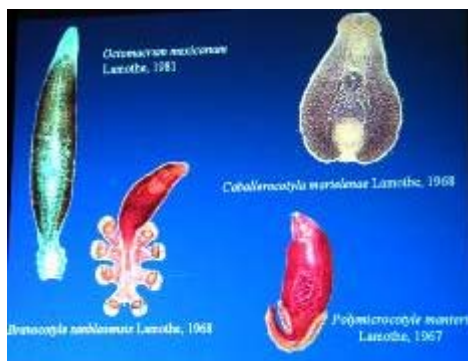
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(Centro de Investigaciones Biológicas, Universidad Autónoma del Estado de Hidalgo, México)

In 2004, the Instituto de Biología, Universidad Nacional Autónoma de México, had its 75th birthday. As part of the year long celebration, special recognition was awarded to various professors/investigators of the institute. One of these, Dr Rafael Lamothe-Argumedo (right), is well known to ichthyoparasitologists.



Marcos Rafael Lamothe-Argumedo was born 25 April, 1932, in México City. He received his BSc, Msc and PhD from the Facultad de Ciencias, UNAM. He was appointed as an investigator in the Laboratorio de Helmintología in 1960, and today, he still is active in that position. Dr Lamothe-Argumedo is the current Curator of the Colección Nacional de Helmintos, IBUNAM. His research includes studies on the taxonomy and systematics of helminths, with special focus on the Monogenea and Digenea. He has also contributed to the knowledge of the causative agents of paragonimiasis and gnathostomiasis in México. To date, he has published 113 articles in peer-reviewed journals, 39 articles of general interest, 13 chapters in books, and 4 books. He has established 2 subfamilies, 17 genera, and described 41 species. He has directed 58 student theses including 51 BScs, 2 MScs, and 2 PhDs.

The award ceremony was lead by **Tila María Pérez-Ortiz** (Director, IBUNAM) and **Fernando Cervantes-Reza** (Secretario Académico, IBUNAM), and special presentations were made by Gerardo Pérez-Ponce de León, **David Osorio-Sarabia**, and **Mario Segura-Almaraz**. The ceremony was attended by a great number of family members, friends, colleagues, students and former students.



Gerardo focused on the scientific contributions of Dr Lamothe-Argumedo. Particular mention was made of his work with *Octomacrum mexicanum* Lamothe, 1981; *Bravocotyle sanblasensis* Lamothe, 1968; *Caballerocotyla marielenae* Lamothe, 1968; and *Polymicrocotyle manteri* Lamothe, 1967.

The speaker also acknowledged what might be considered Dr Lamothe-Argumedo's greatest contribution: his training of a great number of students who now are active researchers in other Mexican institutions. The speaker likened Dr Lamothe-Argumedo's contribution to Mexican parasitology to the formation of a clade of parasitologists, with Dr

Lamothe-Argumedo as the synapomorphy for parasitological activity in all fields within the country. Active research programs in 10 institutions of higher education were eventually founded by his students.

David Osorio-Sarabia focused on Dr Lamothe-Argumedo's role in the history of the development the Colección Nacional de Helmintos (CNHE) and the training of students in systematic parasitology. The collection that would become the CNHE was founded formally by Eduardo Caballero y Caballero in 1932, and he served as its curator until 1964. Dr. Caballero y Caballero was followed by Margarita Bravo-Hollis, who was curator from 1961 until 1970. Dr Lamothe-Argumedo worked as investigator in the CNHE from 1960, and served informally as the curator from 1970 to 1979, when he was officially appointed, a post he still holds today.

Mario Segura-Almaraz presented Dr Lamothe-Argumedo as "Maestro" as he is fondly addressed by the many he has taught. He is well known for taking his students on field trips to a wide variety of habitats, both continental and marine.

Those wishing to congratulate Dr Lamothe-Argumedo may write to him at: Departamento de Zoología, Instituto de Biología, Ciudad Universitaria, U.N.A.M., A.P. 70-153 México, Distrito Federal, C.P. 04510. For email, please send your regards to lamothe@servidor.unam.mx



Margarita Bravo-Hollis, long-time investigator (now retired) of the Laboratorio de Helminología was also recognised for her service to the university and her contributions to science. Margarita was born 10 June, 1911, in Mexico City. She received her first degree in education from the Secretaría de Educación Pública which qualified her to teach school at the primary level. Later, she received the degree of Maestra en Ciencias (Biology) from the Facultad de Ciencias, UNAM. She entered the helminthological laboratory (IBUNAM) as an investigator and served as Curator of the helminthology collection and helped to develop it into the internationally recognised collection (Colección Nacional de Helmintos) that it is today. Her research extended to taxonomy and systematics of helminths of Mexico, with studies of taxa from almost every group of parasitic worms. Margarita Bravo-Hollis is best known for her work with the Monogenea of marine fish of Mexico and Latin America. Her publications include the establishment of 7 subfamilies, 26 genera, and 105 species. In all, she published 96 scientific works and directed 5 theses.

CURRENT RESEARCH ACTIVITIES IN VARIOUS COUNTRIES

AUSTRALIA

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

An effective way to assess the 'health' of fish parasitology anywhere is to assess the activities of those who specialise on studying any fishes for any parasites. The following account indicates that ichthyoparasitology is in relatively good shape 'down under'!

All parasitologists in Australia are delighted that a network linking research activities on parasites across the continent has been funded for the next five years by two funding agencies, the Australian Research Council (ARC) and the National Health & Medical Research Council. The resulting Australian Parasitology Network will provide new opportunities for ichthyoparasitologists and their students to extend and enhance existing collaborations. In addition to the Australian Parasitology Network, four new ichthyoparasitology projects have been funded by the ARC for the period 2005-2007:

Co-divergence or opportunism: the evolution of trematode parasitism in the sea by investigators Tom Cribb (University of Queensland, Brisbane), Ian Beveridge (University of Melbourne) & **Tim Littlewood** (Natural History Museum, London, UK)

Do cleaner fish control infections of parasitic protozoa transmitted by gnathiid isopods & leeches? by investigators Lexa Grutter, **Steve Barker**, **Bob Lester** (University of Queensland, Brisbane), **Angela Davies Russell** (Kingston University, London) & **Nico Smit** (Rand Afrikaans University, South Africa). This project will investigate whether blood parasites can be controlled by cleaner fish that consume the vectors.

Phylogeny & radiation of flatworm ectoparasites from marine fish using morphology and genetics, with approaches to identify pathogenic species by investigators Ian Whittington & **Steve Donnellan** (South Australian Museum/University of Adelaide, Adelaide). This study will focus primarily on phylogeny of the Capsalidae (Monogenea) and their host relationships and will attempt to unravel the systematics and identity of pathogens such as *Neobenedenia* species.

Marine flatworm parasites of elasmobranchs: a unique model for experiments exploring invasion strategies, biology & specificity to help understand parasitism by investigators Ian Whittington (South Australian Museum/University of Adelaide, Adelaide), Leslie Chisholm & PhD student Vanessa Glennon (University of Adelaide, Adelaide). The rhinobatid ray *Trygonorrhina fasciata* in South Australia and some close relatives around the Australian coastline will form a model system to study Monogenea species from skin, gills and cloaca to investigate critical interactions early in the parasite-host relationship and also parasite speciation. This project is a PhD study for Vanessa Glennon.

The Yellowtail/Kingfish Parasite Management Project

At the University of Adelaide, all personnel on this project have been very busy. Kate Hutson (PhD studying parasite interactions between wild and farmed kingfish) was successful at Port Augusta with large wild kingfish donated to her research by recreational fishers. The fish provided an assortment of parasites to study monogeneans, sanguinicolids and protozoa and the up-coming field season will doubtless provide so many more! Rissa Williams (PhD on orally administered chemotherapeutants against skin and gill Monogenea) has performed several feed trials at Port Augusta, South Australia and at Saiki in Japan and must count samples to determine what it all means. Despite two typhoons, **Allan Mooney** (PhD project on life-cycles of polyopisthocotyleans of kingfish and yellowtail) has returned from Japan where he studied egg laying rhythms and egg embryonation of *Heteraxine heterocerca* from Japanese yellowtail. His first scientific paper on egg biology of *Zeuxapta seriolae* is accepted for publication. New Honours student **Julia Lackenby** has started her project on fecundity of *Benedenia seriolae*. These students work closely with Ingo Ernst and Clinton Chambers, who are completing work on the population dynamics of the Monogenea of yellowtail and kingfish in Australia and Japan and will be integrating all aspects of these various projects into recommendations for Integrated Parasite Management.



The Marine Parasitology Group (left to right back row: Clinton Chambers, Ingo Ernst, Ian Whittington, Vanessa Glennon, Allan Mooney; front row Kate Hutson, David Schmarr, Rissa Williams, Leslie Chisholm) at the University of Adelaide (Ian Whittington is a joint appointee with the South Australian Museum) focuses on the biology and systematics of Monogenea, but some projects are broader. **David Schmarr** (PhD student also with the South Australian Research & Development Institute Aquatic Sciences

Division) is studying stock discrimination of *Scomber australasicus* using a holistic approach of parasites, genetics and otolith microchemistry. David is finding a range of tapeworm, digenean, monogenean, acanthocephalan, nematode and crustacean parasites.

Ian Whittington and Leslie Chisholm presented invited papers at the SCOFDA (Sustainable Control of Fish Diseases in Aquaculture) Workshop in Copenhagen, Denmark (November 3 – 4, 2004) on their continuing research programs on Monogenea.

For information on our group and research, check out the following web sites:

<http://www.ees.adelaide.edu.au/people/enviro/iwhitt01.html>;

<http://www.marinebiology.adelaide.edu.au/>

Involvement at two research institutions in South Australia means that visiting parasitologists tend to drop in. In 2004, we enjoyed a visit from **Dr Graham Kearn** (Norwich, UK) who, during his 'retirement' from parasitology continues to write books, teach students and do research on Monogenea. Also, newly promoted Professor Ian Beveridge visits Adelaide twice-a-year in his quest to sort out the taxonomy of seemingly all parasite groups from all host groups and not just fish, like the rest of us! Ian Beveridge recently flew to Noumea, New Caledonia to collect fish and parasites with **Jean-Lou Justine** and **Louis Euzet**.

BRAZIL

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

The "**Laboratory of Helminth Parasites of Fishes, Instituto Oswaldo Cruz, Rio de Janeiro, Brasil**", headed by **Anna Kohn**, comprises a small group of women. One of our main projects is the study of the fish parasites of the reservoirs of hydroelectric power stations in Paraná and dams in Ceará States. General data from both localities were published recently.

Fish parasites of Brazilian tuna are being studied by Anna Kohn and colleagues. A new species of *Nasicola* (Capsalidae) was erected and published this year in collaboration with **David Gibson** (London). Continuing the studies on tuna, new occurrences of didimozoids and Monogenea are being reported with **Marcia Justo**.

Simone Cohen is focusing on the dactylogyrid parasites of freshwater fishes from reservoirs with new species, hosts and geographical distribution being documented.

Maria de Fatima Baptista-Farias and **Maria Clara Pamplona-Basilio** (PhD student) are working on the ultrastructure of spermatozoa of monogeneans from anchovies.

Berenice Fernandes, S.Cohen and **Roberto Pinto** (“Lab. Helmintos Parasitos de Vertebrados, Instituto Oswaldo Cruz”) are studying the Digenea and Nematoda fauna from marine fishes from littoral areas of Rio de Janeiro.

A catalogue of the South American digeneans of fishes is being finished for publication by A. Kohn, B.M.M. Fernandes and S. Cohen. Another checklist of the Monogenea of Central America and Mexico is being prepared for publication by A. Kohn, S.C. Cohen and **Guillermo Salgado Maldonado** (Mexico).

MÉXICO

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

This year has been an active one in México. If your news was not included be sure to contact me with your information for the next newsletter.

María del Carmen Gómez del Prado (Dept. de Biología Marina, Univ. Auto. de Baja California Sur, BCS) attended an ichthyology conference (IX Congreso Nacional de Ictiología in Tabasco) to report on her work with larval trematodes of fish. She was awarded a Beca de Exclusividad this year in the area of Marine Sciences at UABCS.

Investigators from the Laboratorio de Helmintología, Instituto de Biología, UNAM, Rafael Lamothe-Argumedo, Gerardo Pérez-Ponce de León, Virginia León-Regàgnon, **Luis García-Prieto**, **Guillermo Salgado-Maldonado**, and David Osario-Sarabia were busy with various projects on fish helminths. Gerardo and David gave excellent presentations at Dr Lamothe-Argumedo’s awards ceremony (see earlier). Guillermo is developing plans for the Sixth Acanthocephalan Workshop, to be held in México in 2005. If you are interested in this conference please contact him at gsalgado@ibiologia.unam.mx



Hugo Mejía-Madrid (right, Investigator at Benemérita Universidad Autónoma de Puebla and PhD student—supervised by G. Pérez-Ponce de León) says that he is almost ready to defend his PhD at UNAM on the nematode parasites of Mexican freshwater fishes and hopes to be finished in mid-2005.

Tomáš Scholz (Czech Republic) visited **David González-Solís** (Parasitología del Necton, El Colegio de la Frontera Sur, Quintana Roo) and Guillermo Salgado-Maldonado (IBUNAM) this fall. David received funds to investigate the helminth parasites of *Lutjanus griseus* and *Gerres cinereus* from the southern coast of Quintana Roo. Besides attending CONAPAR this year, he has published several papers, including one on *Vasorhabdochona cablei*, a nematode parasite of fish from the Pacific coast of Mexico.

Fernando García-Vargas (Centro de Investigación en Alimentación y Desarrollo, Mazatlán, Sinaloa), former UNAM student, is now studying the helminth fauna of pargo (Lutjanidae) of the Pacific for his PhD.

At the Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico, **Griselda Pulido-Flores** is continuing her study of monogeneans of elasmobranchs. She and Scott Monks visited **Steven Nadler** (University of California, USA) to learn molecular techniques

as part of their collaborative UC Mexus-Conacyt grant to compare the genetic divergence among amphi-American *Echinocephalus* of Mexico and their stingray hosts. Scott, Griselda, and collaborators Hugo Mejía-Madrid, **Maria del Carmen Corona-Vargas** (Universidad Autónoma de Tlaxcala), and **Jesus Fernandez-Fernandez** (currently a PhD student at IBUNAM) are continuing their study of the helminth parasites of freshwater fishes of the Reserve of the Biosphere “Barrancas de Metztlán”, Hidalgo. **Ana Erika Gutiérrez-Cabrera** (BSc student), a student participant in the project, successfully defended her thesis on *Bothriocephalus acheilognathi* in the fish from Laguna de Metztlán. Griselda received an additional grant to study the parasites of native vertebrates (including fish) from Hidalgo. **Kenia Magali Ortega-Sánchez** is continuing her study of the morphology of the acanthocephalans currently assigned to *Floridosentis*, and expects to defend her thesis in 2005. **Lorena Porraz-Álvarez** (helminths of carangids), and Berenice Aleman-García (meristic study of an acanthocephalan, a species of *Dollfusentis*) are continuing their thesis projects. Lorena expects to finish in 2005 and Berenice in early 2006.

If you are looking for a place to carry out your postgraduate studies, we have openings for graduate students in areas related to helminths of fish. Students need to speak some Spanish since classes are generally taught in Spanish. For information on the graduate program at the Universidad Autónoma del Estado de Hidalgo, please check the following web pages at:

http://www.reduaeh.mx/oferta/icbi/maestrias/maest_recursosbioticos.pdf

http://www.reduaeh.mx/oferta/icbi/doctorados/doctorado_%20recursosbioticos.pdf

You can also contact Scott smonks@uaeh.edu.mx or Griselda at gpulido@uaeh.edu.mx for further information.

PORTUGAL

provided by Maria João Santos, mjsantos@fc.up.pt

The Animal Pathology Group from the Department of Zoology-Anthropology / CIIMAR, University of Oporto, headed by **Jorge Eiras** (iceiras@fc.up.pt), includes senior researcher team members **Aurelia Saraiva** (amsaraiv@fc.up.pt), **Cristina Cruz** (cfcruz@fc.up.pt) and **Maria João Santos**. Several students are also currently working on their theses on fish parasitology: **Joana Marques** (PhD), **Custodio Boane** (PhD), **Cristina Barbosa** (MSc) and **Margarida Hermida** (MSc).

Different studies on fish parasites of eels, trout and seabass are being carried out. Currently the following projects are running in our laboratory: “Black scabbardfish in the Portuguese waters: conservation measures and fish quality control”, with a project on the use of parasites as possible biological tags, supported by the National Science Foundation (2004-2006) - J. Eiras, A. Saraiva, C. Cruz, M. J. Santos; “Studies on the gill disease caused by amoeba and systemic ciliatosis caused by scuticociliata in cultured seabass”, supported by Oporto University and Ilídio Pinho Foundation (2004) - M. J. Santos, A. Saraiva, **F. Cavaleiro**, **P. Campos**, **A. Sousa**, **F. Teixeira**, **M. Martins**, **M. H. Sousa**; “Phylogenetic position and fine anatomy of *Didymobothrium* sp., a non-segmented tapeworm pathogen of sole with important implications for the evolution of the higher Cestoda (Platyhelminthes)”, partly supported by the Treaty of Windsor Anglo-Portuguese Joint Research Programme (2005-2006) - M. J. Santos, **H. Cabral**, J. Marques (Portuguese team) and **P. Olson**, **D.I. Gibson** from London NHM (British team). Meanwhile, collaboration in projects from other countries and other Portuguese universities are also being carried out. More detailed information about our previous work

and publications can be seen at the web page: <http://www.fc.up.pt/zoo-ant/secco/patol/patol.html>

At the University of Algarve, Faro, Portugal, **Isabel Afonso-Dias** (ideas@ualg.pt) was working on a "Parasitological survey of the anglerfishes, *Lophius piscatorius* L. and their use as biological tags" in collaboration with Ken MacKenzie (The University of Aberdeen, Scotland). She is currently working with sardines, one of the most important fish for the Portuguese fish market.

SOUTH AFRICA

University of Bloemfontein

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

As I reported in previous newsletters, one of our major research projects is the study of fish parasites of the Okavango River and Delta in Botswana. We have been going to this part of Botswana for the last eight years. After a research visit in 2003, we submitted a successful tender to the Jakotsha Trust to build a permanent research camp within the swamp. Our new research camp is close to Shakawe, which is situated in the north western part of the Okavango Panhandle.

In order to apply the outcome of our research to the conservation of the Okavango Delta and to improve the quality of life of its peoples, as well as enabling the continuation of research on this pristine and precious wilderness area, we formulated the Leseding (Place of Light in Setswana) Project. The core business of the Okavango Delta Leseding Project will remain research, but we will also be involved in environmental education and other community activities.

During our fieldwork in the Okavango, we came into contact with other groups of scientists specialising in different fields, but all with a common goal; to contribute towards the conservation and sustained development of the Okavango Delta. We combined our efforts in the first ever multi-sectoral Trust in this area, merging research, commerce and activism in one project. We subsequently formed the Samochima Aquaculture and Research Trust (SART), from the collaboration between five groups, including the University of the Free State (Zoology Department), the Department of Conservation Ecology (University of Stellenbosch - Okavango Crocodile Research Project) and the Harry Oppenheimer Okavango Research Centre (University of Botswana), as well as Tuudoro, a non-profit company of community development specialists. All four above groups have extensive



experience in their fields and have actively been working in the Panhandle area of the Delta. The fifth partner, the Samochima Crocodile and Aquaculture Farm, is a commercial crocodile and fish farm that provides the land, security and management of facilities, as well as on-site research opportunities with fish as well as crocodiles. The farm is situated near the village of Samochima, 12 km south of Shakawe on the western edge of the Panhandle. The first phase of development (see aerial picture of the north

eastern part of the Samochima Crocodile and Aquaculture Farm; the field laboratory is being built in the thick bush on the top left of the picture), includes construction of a field laboratory, aquarium, kitchen, semi-permanent tented accommodation and ablution facilities and will be completed by the end of January 2005. The second phase of

development will be a venue for educational and environmental purposes to enhance community involvement and wider understanding.

Okavango Delta Leseding Project of the University of the Free State (UFS)

This research is carried out by the University of the Free State in collaboration with staff of the HOORC of the University of Botswana, University of Johannesburg and Medical University of South Africa. One of the most important resources of the Okavango is its fish. Thousands of people survive directly or indirectly from this resource and yet nothing was known about the parasites and pathogens of the fishes of the Okavango before we started our study in 1997.

This research focuses on aquatic parasites affecting fish and other aquatic hosts as well as those that may have an influence on humans. Future research will include an extension of the ongoing aquatic parasite biodiversity program of the UFS, but will also follow up on interesting models of parasite behaviour and parasite induced behavioural changes in hosts that have been recorded during our study so far. Another objective is to continue the monitoring process to map any changes in the ecosystem and to prevent the introduction of any alien fish or parasites into the system. This research will also extend to fishing communities in providing demonstrations on basic water hygiene to prevent the transmission of water borne diseases.

Sea World and the South African Association for Marine Biological Research at uShaka Marine World

provided by David Vaughan, david@seaworld.org.za



The South African Association for Marine Biological Research encompasses Sea World and the Dolphinarium, the Oceanographic Research Institute (O.R.I) and the N.P.C Sea World Education centre, housed at uShaka Marine World in Durban's Point district.



In April 2004, Sea World moved from the old premises of 47 years off Marine Parade in Durban, to the larger, more sophisticated aquarium at uShaka Marine World. All animals were relocated over a series of days to their designated areas and exhibits. All fishes and sharks were fully quarantined to minimise the risk of transfer of disease and parasites from the old aquarium to the new. Sea World effectively became a large scale fish quarantine facility after it closed its doors to the public in January 2004. In addition, two satellite quarantine facilities were set up to house and treat all the new acquisitions simultaneously.



A quarantine facility was built at the new aquarium as a first line of defence against the myriad of parasites associated with the large scale collections and volumes of different marine fish species managed at a public aquarium of this scale. The facility focuses on the prevention of disease outbreaks. We use prophylactic treatments and specialised dosing equipment enabling the entire facility to operate on open-system technology. A separate, isolated hospital wing handles known parasitic as well as other diseases once they have been

positively identified by the diagnostic section in the adjoining laboratory. Life-cycle information is sought for many parasites so Integrated Parasite Management strategies can be implemented effectively to combat outbreaks in the public displays and to help with prevention.



We experience temperatures between 19 and 26°C and have a naturally large diversity of teleosts, sharks and stingrays. Therefore we are confronted by a large diversity of parasites, many of which are undescribed. In collaboration with **Dr Kevin Christison** from the University of the Western Cape over the last two years, we have investigated new strains of *Cryptocaryon*, (pictured left), the infamous marine whitespot parasite, with some fascinating discoveries. We are also studying many different monogeneans including

Dendromonocotyle sp. on stingrays of the *Himantura* genus, with thanks to Dr Leslie Chisholm, *Microcotylidae* on *Chaetodon* sp. and *Apolomichthys* sp. and species of Dactylogyridae on *Argyrosomus* sp. However, numerous unidentified monogeneans and caligid copepods from many host species await description!

Parasites are easily obtained through the quarantine process and the facility has enormous potential to provide information on the control of a wide variety of different fish parasites. This could benefit not only other public aquaria, but also have a direct impact on the success of aquaculture and mariculture by providing the required support structure for research on the same parasites plaguing the developing industry.

Development of treatments for specific problematic parasites will be our focus for the future. Collaborative work between South African public aquaria could boost the structured outputs and provide a broader information pool. Once established, an additional international pharmacological collaboration effort can be investigated whereby public aquaria and other institutions can standardise techniques for the development of treatment trials for the benefit of the international community. With the support and expertise already pledged by Kevin Christison, other public aquaria and the mariculture industry, the full potential of the facility run by the South African Association for Marine Biological Research through the infrastructure at Sea World, can be achieved.

UNITED KINGDOM

provided by Ken Mackenzie, k.mackenzie@abdn.ac.uk

Ken McKenzie (The University of Aberdeen, Scotland) and his colleagues are still involved in various projects, as reported in Newsletter No. 11. The study of the protozoan and metazoan parasites of the anglerfishes *Lophius piscatorius* and *L. budegassa* in the northeast Atlantic, with Isabel Afonso-Dias (The University of Algarve, Faro, Portugal), continues. The main aim of the study is to identify parasites that may be used as biological tags to help in stock identification of the two host species. Isabel and Ken have just had a checklist of the parasites reported from these hosts published in the *Bulletin of the European Association of Fish Pathologists* 24(5), which includes many new host records from their study and two, possibly three, new species of myxosporean, descriptions of which are being prepared for publication. The project was funded by the Portuguese Fundação para a Ciência e Tecnologia.

Investigations of the sealworm, *Pseudoterranova decipiens*, in cod (*Gadus morhua*) and other fish in North Norway also continues. This project commenced in 2003 and is funded

by the Institute of Marine Research, Tromsø, Norway. Research partners are: **Willy Hemmingsen** (University of Tromsø, Norway), **Erik Berg** (Institute of Marine Research, Tromsø, Norway) and Ken MacKenzie. Infections of the nematodes *Pseudoterranova decipiens* and *Anisakis simplex*, commonly known as “codworm” and “herringworm” respectively, present a major aesthetic and human health problem for the fishing industry. Increased levels of infection of cod in coastal areas of North Norway in recent years are considered to have been the result of 2 factors: (1) a change in the diet of cod, from feeding mainly on the pelagic species capelin and herring, which are not infected with codworm, to feeding on small demersal species of fish that are known to be heavily infected, and (2) an increase in the numbers of seals in the region. The aim of this project is to determine the levels of infection in cod and small demersal species of fish caught at a number of selected stations along the coast of Troms and Finnmark counties.

The Institute of Marine Research also funded Willy, **Peder Jansen** (Department of Fisheries, Oslo, Norway) and Ken to investigate the effect of the presence of the introduced red king crab (*Paralithodes camstchaticus*) on trypanosome infections in cod and other commercially important marine fish in north Norway. Since the introduction of *P. camstchaticus* to the Barents Sea from its native north Pacific in the 1960s by Russian scientists, a rapidly growing and disseminating population has become established in coastal areas of the southern Barents Sea. The marine leech *Johanssonia arctica* has been shown to be the vector for *Trypanosoma murmanensis*, a blood parasite of marine fish first reported from cod in the Barents Sea. This leech has a circumpolar distribution and lays its eggs on various species of crab, including *P. camstchaticus*. This study was undertaken in response to concerns that the burgeoning population of king crabs in the Barents Sea will lead to an increase in the population of the leech *J. arctica* and consequently, to an increase in the level of trypanosome infection in cod. *Trypanosoma murmanensis* has been shown to be capable of killing juvenile cod, and heavy infections are likely to have debilitating sublethal effects on adult cod and other fish.

From 1999 to 2004, during annual research vessel cruises, Ken and colleagues have taken blood samples at the same trawl stations along the north coast of Norway, mainly from cod but also from some other common demersal species. Cod and haddock (*Melanogrammus aeglefinus*) carry the heaviest trypanosome infections and show significant geographical variations in both prevalence and intensity of infection. The heaviest infections each year have been recorded from eastern Finnmark, where the population of king crabs is greatest, and decreases westwards towards areas to which they have not yet spread. There is, however, one other small focus of relatively heavy infection in western Finnmark that coincides with an area where indigenous spider crabs (*Lithodes maja*) are known to be particularly abundant. We suspect that there are at least 2 species of trypanosome and 2 species of leech with different distributions in our study area. A paper presenting the results of these surveys is presently in press in *Marine Pollution Bulletin*.

UNITED STATES

Stony Brook University

provided by Alistair Dove, adove@notes.cc.sunysb.edu

After establishing a state marine diagnostic facility for New York marine waters, largely in response to lobster mortality in Long Island Sound, **Alistair Dove** has officially moved from a research associateship with Cornell University to a tenure tracked assistant professor position with Stony Brook University. This is largely an administrative change as

his office and lab remain at SBU's Marine Sciences Research Center on the north shore of Long Island. He continues to direct research efforts of the group towards parasites as much as possible.

Projects are underway to study the dynamics and impact of philometrid nematodes in both bluefish, *Pomatomus saltatrix* (students **Walter Burak**, **Lora Clarke**), and striped bass, *Morone saxatilis* (**Amanda Tribble**). In



addition, AI is seeking funds from several sources to start a long-dreamed program to explore and understand the nature of richness and biogeography in parasite

communities of marine fishes. This endeavour would renew research connections with Tom Cribb at University of Queensland (Australia) and build new connections with **Bill Font** at Southeastern Louisiana University (USA), as well as providing PhD fodder for **Mark Sokolowski** (left with a big spawning striper from the spring *Philometra*/mycobacteriosis survey), who has been part of the Dove lab since its beginning in January 2002.



Heavy *Philometra* infection in bluefish ovaries

University of the Pacific

provided by Fuad Michael Nahhas, fnahhas@pacific.edu

Fuad Michael Nahhas, who retired from teaching five years ago, is lucky enough to be able to maintain his office and privileges at the University of the Pacific, Stockton, California as Professor Emeritis. I take about four undergraduate students every semester to assist me in research and at the same time they learn techniques of taxonomic research and get co-authorship on some publications. In the last two years, I have published three papers, one on the digeneans of marine fishes from Suva, Fiji and two on digeneans of fishes from the Arabian Gulf. The two Arabian Gulf papers are joint co-authorship with **Professor Otto Sey** of the University of Pecs, Hungary. All three papers include students as well. I hope taxonomic parasitology will continue to survive if some of the students decide to do graduate work in the field.

IN MEMORIAM

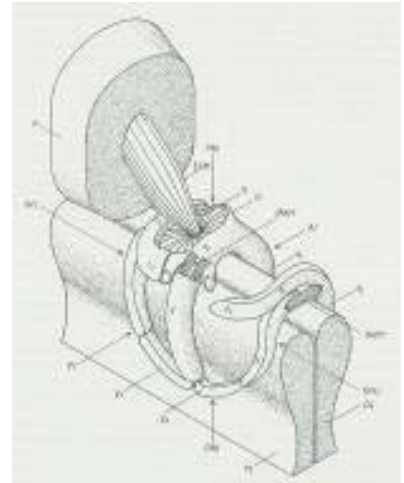
Professor Jack Llewellyn



Professor Jack Llewellyn died on Saturday 9th October 2004 at Selly Oak Hospital, Birmingham England, after suffering a severe stroke a few weeks earlier. He is survived by his wife Glenis and his son Bryn.

Although Jack spent most of his professional life in England at the University of Birmingham, he was born in Abercarn, near Newport in Wales in 1917. He was intensely proud of his Welsh origins and a keen Welsh rugby supporter. Jack's work on monogeneans is legendary and inspired a whole generation of students of Parasitology, including myself. As an undergraduate at Imperial College, London University, I was

introduced to Jack's work by the late Dr June Mahon and I was captivated by his unique approach. Many monogeneans have remarkably elaborate organs for attachment, copulation, feeding and egg assembly, and yet, before Jack's time, few parasitologists had considered how these organs work – most were concerned with taxonomy and were content to examine preserved animals distorted by flattening. Jack's refreshing approach involved study of living monogeneans, combined with time-consuming and skilful interpretation and reconstruction from serial histological sections. Jack's considerable artistic ability is exemplified by his beautifully executed three-dimensional illustrations, such as the stereogram of an attachment clamp of *Diclidophora* attached. But he was not content with theorising about how these amazing organs worked - he constructed working models to test his ideas. He used photography extensively and excelled in photomicrography.



Photography was also important to him as a hobby and the photographs that he took in his leisure time were first rate, both technically and artistically. He also had an interest in opera, perhaps stemming from his Welsh background. When I was a student I recall his concern about my musical ignorance. During a break from the First International Congress of Parasitology in Rome in 1964, he insisted that I should advance my musical education by accompanying him to a performance of "La Traviata".

Jack's contribution to Parasitology is outstanding and especially important because he encouraged us to study living animals and, while advocating careful recording and observation, to think about how flatworms work. But he also made a second very important contribution – he taught us to think about relationships of platyhelminths and in particular about the evolutionary events that might have shaped them. These lessons remain important today, even against the background of molecular biology. Jack will be sadly missed.

Graham Kearn.
November 4th 2004.

(See also *Folia Parasitologica*, volume 34, 1987, pp. 155 – 156; *Systematic Parasitology*, volume 42, 1999, pp. 159 – 160).

Professor Hisao P. Arai



The parasitological community was saddened to lose one of its long-time members, Dr. Hisao Philip Arai on August 21st, 2004 after a brief illness. Hisao Arai was born in Los Angeles, California on October 8, 1926. After receiving his PhD from the University of California, Los Angeles in 1960, he held an NIH Post-Doctoral Fellow at the University of British Columbia from 1960-1961. He taught briefly at Illinois State Normal University from 1961-1963 before returning to Canada as a staff member of the Department of Biology at the University of Calgary, where he taught the parasitology course. Hisao rose through the ranks at U of C to attain full professorship before his retirement in 1994. Hisao

received many honors during his long career. Among them were the Robert Arnold Wardle Award given in 1993 by the Parasitology Section of the Canadian Society of Zoologists for his contributions to Canadian parasitology; in 1998 he was made an Honorary Member of the Canadian Society of Zoologists. Hisao had a long association with the Canadian Department of Fisheries and Oceans' Pacific Biological Station in Nanaimo, British Columbia. During his university career he spent his summers there doing research on fish parasites as a volunteer investigator. Following his retirement, he continued this association on a full time basis as a Senior Volunteer Investigator. Having conducted some of his early work on parasites of fishes in Baja California, Mexico and later on Canadian marine fishes at Burke Channel in British Columbia, Hisao maintained a life-long interest in ichthyoparasitology. This passion was passed on to his many graduate students, who worked in his laboratory on topics ranging from taxonomy, phylogenetics and ecology to physiology and biochemistry. Hisao also maintained a personal interest in helminth physiology and for many years his laboratory in Calgary conducted experimental research on hymenolepid cestodes. Those who were fortunate to be accepted to graduate studies under Hisao Arai will remember him as a rigorous scientist and a caring supervisor who was always attentive to their personal and professional problems. Hisao is survived by his wife Mary, sons Bruce (and his wife Tracey), Gordon and Hugh, and by three grandchildren Jerrel, Maggie and Wesley. Readers wishing to honor Hisao Philip Arai may do so by sending a donation to Wilfrid Laurier University, where a scholarship fund has been established in his name (H. P. Arai Scholarship Fund, Development Office, Wilfrid Laurier University, 75 University West, Waterloo, Ontario, Canada N2L 3C5).

NEW BOOKS

Parasitology and fish pathology: encyclopaedic glossary-reference book

Author: A.V. Gaevskaya

Moscow. VNIRO Publishing. 2003. 231 pp.



This universal reference publication includes 2400 articles on parasitology and fish pathology, infectious, invasion and alimentary diseases of hatchery-reared and aquarium fishes, their prophylactic and therapeutic measures, as well as on various diseases of fishes in their natural habitat. Data are given on pathogenic organisms, fish morphology, anatomy and physiology, on the most abundant families of commercial marine and freshwater fish species, on the problem of water body pollution and the impact of environmental factors upon the development of specific diseases.

The book is of great importance for fish parasitologists, veterinary

surgeons, ichthyologists, fish culturists, aquariumists, workers in fishing and fish processing branches, ecologists, students of fishery and veterinary educational institutions, as well as of biological departments of universities and institutes.

Parasites and diseases of marine and oceanic fishes in natural and culture conditions

Author: A.V. Gaevskaya

Sevastopol: EKOSI- Gidrofizika, 2004. – 237 p.

This book contains information about the main infectious, invasive and non-contagious diseases and parasites of marine and oceanic



fishes in natural and culture conditions. It includes details of disease distribution, pathogenic states of different disease agents, and short recommendations on the possible processing of diseased fishes and control measures if they are appropriate. Methods for the parasitological analysis of fishes, sampling fish for parasitological analysis and the determination of the viability of parasites pathogenic to people are discussed. The handbook includes a taxonomic index with the lists of common names of fish (450 species) and scientific (470) and common (540) names of diseases and parasites.

The book is aimed at specialists in fishery and fish-processing industries, veterinarians, ichthyologists, parasitologists, fishmongers and both fish and veterinary students.

Keys to the Trematoda, Volume 2

Editors: A Jones, RA Bray & DI Gibson, The Natural History Museum, London

UK Publication January, 2005. Pages 768

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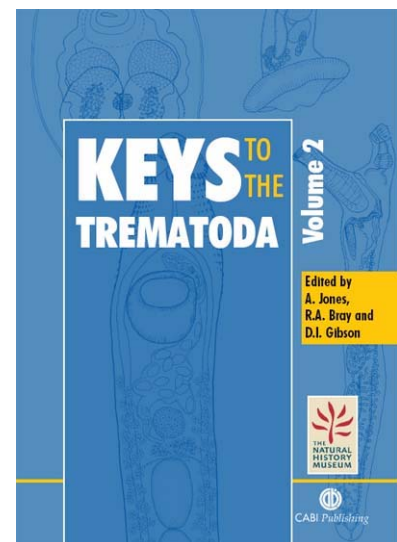
Key Features: Provides classification based on morphological characters to enable identification of all the digenean parasites

Authors: Specialists from the UK, USA, Australia, Brazil, Bulgaria and India.

Readership: Parasitologists involved in identification and research in medical and veterinary helminthology.

Description: This is the second of three volumes of Keys to the Trematoda, a series on the systematics and identification of the Class Trematoda. The book presents the taxa in the Order Echinostomida and some of those in the Order Plagiorchiida, with keys for their identification at the superfamily, family, subfamily and generic levels. The keys are based on critical examination of specimens by subject experts, and generic diagnoses are accompanied by

illustrations of important morphological characters. This volume includes seven echinostomidan superfamilies (the echinostomatoids, haploporoids, haplosplanchnoids, heronimoids, microscaphidioids, paramphistomatoids and pronoccephaloids) and two plagiorchiidan superfamilies (the allocreadioids and lepocreadioids). Some of the included families (e.g. Allocreadiidae, Opecoelidae, Lepocreadiidae, Acanthocolpidae, Haploporidae, Apocreadiidae) will be of major interest to fish parasitologists.



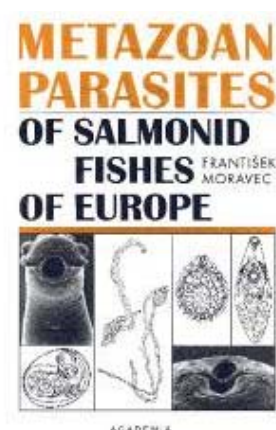
The first volume (published in 2002) covered the Subclass Aspidogastrea and Order Strigeida, while the third volume, due to be published in early 2006, will cover the remaining members of the Plagiorchiida and the Didymozoidae.

Metazoan parasites of salmonid fishes of Europe

Author: F. Moravec

2004. Academia, Prague, the Czech Republic. 510 p. Hardback ISBN 80-200-1189-7; Price CZK (Czech crowns) 560 (US \$24).

In addition to data on the morphology, biology and distribution of metazoan parasites of salmonids, this book contains keys for the identification of these parasites at different taxonomic levels.



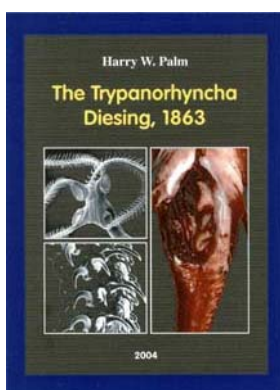
Métodos de Estudio Técnicas Laboaratoriales en Parasitología de Peces

Authors: J.C. Eiras, R.M. Takemoto, G.C. Pavanelli
2003. Editorial Acribia, S.A., Zaragoza, España. 133 p
ISBN 84-200-0975-X; Price 12.5 Euros

The book outlines the basic laboratory procedures used in the study of fish parasites.



The Trypanorhyncha Diesing, 1863



Author: Harry W. Palm
2004. PKSPL-IPB Press, Bogor. X+710 pp
ISBN 979-9336-39-2; Price 198 Euros
see <http://www.marineparasitology.com/HarryBooks.htm> for student prices, reduced multiple book order prices, the order form and further information on the book).

This book includes a monographic treatment of the Trypanorhyncha, including descriptions of 254 species, 27 of them new, and a new classification. The book is illustrated with 1250 drawings and 600 SEM/TEM images and nearly 4000 host parasite records from fresh- and marine waters have been evaluated. One of the results is the low host specificity of this primitive order of tapeworms, indicating a low level of host parasite co-evolution. A theory on the evolution of the Trypanorhyncha is presented, explaining the observed distribution patterns of these parasites in their fish hosts.

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], Parasitology Section, The Science Centre, South Australian Museum, North Terrace, Adelaide 5000, South Australia, Australia: Fax: +61 8 8207 7222, **before** November 15, 2005.

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 are welcome. Please send images as separate JPG files (do not incorporate them in your text file).

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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