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EDITORIAL

This past year many ichthyoparasitologists attended the 8th International Symposium on Fish Parasites held in Chile. A summary of that meeting is given below. I am sad to report the passing of Vernon Thatcher, who died in October 2011; he will be missed by many. I welcome Guy Lekeufack, the new Regional Representative for Cameroon. It is nice to have some news from our African colleagues.

Next year marks two decades of the newsletter. Anyone wishing to contribute to the next issue of the Newsletter (Number 20) should note that the deadline date for submission is **November 15, 2012**. 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.talktalk.net/newsletter/>

ANNOUNCEMENT

7th International Symposium on Monogenea August 4 – 9, 2013, Rio de Janeiro



The Organising Committee is happy to invite our friends and colleagues to the 7th International Symposium on Monogenea to be held in Rio de Janeiro August 4 – 9, 2013. We will ensure a scientifically exciting meeting and that both conference attendees and accompanying persons enjoy our wonderful city.

Follow us on our homepage (<http://zoo.bio.ufpr.br/ISM7>) and on Facebook to keep informed about the developments related to the organisation of ISM7. We will be renewing and updating the information available on the homepage, so check it often and plan ahead!

The Organising Committee of ISM7

MEETING REPORT



The 8th International Symposium on Fish Parasites was held at the Hotel Gala, Viña del Mar, Chile, September 26–30, 2011. It was hosted by the South American Ichthyoparasitologist's Consortium, comprised of specialists from Argentina, Brazil and Chile.

The meeting included conferences, key note addresses, talks and poster sessions. The Symposium began with the invited conference *Biodiversity of fish parasites in South America: learning from our history and shaping the future* by **J.L. Luque** (pictured right), Brazil. Other conferences were: *Fish parasites: from Linnaeus to molecules* (**T. Littlewood**, UK), *Fish Parasites and food web* (**K. Lafferty**, USA), *Are we ever going to figure out why some fish species have more parasites species than others?* (**R. Poulin**, New Zealand) and *Parasites and Fisheries* (**K. MacKenzie**, UK). In addition, each thematic session began with an invited keynote address, including presentations by: **R.**



Adlard (Perspectives on the taxonomy and systematics of the myxozoa), **C.P. Santos** (Monogenean contributions to the International Symposia on Fish Parasites), **T. Littlewood & R. Bray** (What's needed for a comprehensive molecular phylogeny of Digenea?), **K. Ogawa** (Control of parasitic diseases on fish in Japanese culture), **K. Buchmann** (Fish parasites and pathology), **F. Moravec** (Achievements of recent studies on philometrid nematodes (Philometridae) important parasites of fishes), **R. Poulin** (Putting some ecology back into host-parasite cophylogenetic studies: interaction frequency in geographic space), **B. Nowak** (Epidemiology of parasitic diseases in fishes), **T. Scholz** (Hot spots of cestode diversity in teleost fish: a brief summary of the systematic studies on fish tapeworms), **V. Vidal-Martinez** (Fish parasites in the neotropics), **M. George-Nascimento, M.E. Oliva & J. Carvajal** (Spatial and temporal variability of parasite infracommunities in marine fish species differing in body mass), **M.T. Gonzalez** (Are there latitudinal patterns in fecundity and body size of digenean species in littoral fishes from southeastern Pacific?), **S. Klimpel** (Fish parasites in extreme environments) and **J.T. Timi** (Parasites as biological tags for fish stock assessment: limitations and perspectives).

Approximately 200 ichthyoparasitologists from 30 countries were registered. This included more than 86 ichthyoparasitologists (undergraduate and post-graduate students), demonstrating that ichthyoparasitology is in good shape in South America. Without doubt, ISFP VIII was a key step in the development of the ichthyoparasitology in South America.



ISFP IX will be held at Valencia - Spain in 2015.

Dr Marcelo E. Oliva

CURRENT RESEARCH ACTIVITIES IN VARIOUS COUNTRIES

AUSTRALIA

provided by Ian Whittington, ian.whittington@samuseum.sa.gov.au
& Kate Hutson, kate.hutson@jcu.edu.au

The annual Australian Society for Parasitology (ASP) scientific conference was held during July at Cairns, northern Queensland. The meeting was preceded by a 1-day Aquatic Parasitology Workshop: *Detection & Diagnosis*, convened by **Kate Hutson** (James Cook University [JCU]). The workshop attracted 40 delegates, including students, veterinarians, aquaculture industry representatives and researchers, comprised presentations on Protozoa (**Barbara Nowak**, University of Tasmania), Myxozoa (**Rob Adlard**, Queensland Museum [QM]), Cestoda (**Scott Cutmore**, University of Queensland [UQ]), Digenea (**Terry Miller**, QM), blood flukes (Kate, JCU), Monogenea (**Ian Whittington**, South Australian Museum/University of Adelaide), Nematoda (**Shokoofeh Shamsi**, Charles Sturt University), Copepoda (**Mark Costello**, Leigh Marine Laboratory, University of Auckland, New Zealand), Isopoda (**Nico Smit**, North-West University, South Africa), fungi and other minor groups (**Bob Lester**, UQ) and Molecular methods (**Nathan Bott**, South Australian Research & Development Institute). The laboratory session saw all delegates dissecting a range of fresh reef fish sourced from local markets. The workshop was a successful start to a good conference. The ASP conference included a symposium on Tropical Marine Parasitology with presentations by **David Blair** (recently retired from JCU) on tropical marine parasite studies, Rob Adlard on myxozoan diversity in coral reef fish and Nico Smit on gnathiid isopods.



There has been plenty of activity this year in the *Marine Parasitology Laboratory* at JCU (see www.marineparasites.com). **Kate** welcomed **Ian** to the lab in a beautiful tropical winter where they completed research on the parasite fauna of barramundi. **Alexander Brazenor**, supervised by **Kate** and **David**, completed his Honours thesis in Oct 2011 on two important ectoparasites infecting Asian sea bass (*Lates calcarifer*). **Alex** elucidated the life cycle of *Lernanthropus latis* (Copepoda) and determined the generation time of *Neobenedenia* sp. (Monogenea) at various combinations of temperature and salinity. **Alex** plans to start a PhD in 2012 and further investigate these two problematic parasite species in aquaculture. **Thane Militz**, who began his Honours research in the lab in September 2011, is investigating the efficacy of garlic extract as a natural control against protozoan parasites (*Cryptocaryon irritans*) in ornamental fishes and has successfully cultivated his first batch of clown fish (*Amphiprion*).

As part of a capacity building grant from ABRS to study acanthocephalans from Australian fish, **Lesley Warner/Smales** (Honorary Researcher, South Australian Museum) visited the Natural History Museum, London to access their Acanthocephala collection and literature.

Ian Whittington spent November 2011 with **Marcus Domingues** at the Universidade Federal do Pará, Bragança, Pará in northern Brazil to complete work on a project that began when Marcus worked in Adelaide for 4 months in 2008/09 with Ian and **Leslie Chisholm** (South Australian Museum). The plan is to complete descriptions of several new hexabothriid taxa (primitive polyopisthocotylean monogeneans) from the gills of sharks and rays. Much of the material was collected by **Ian** and **Leslie** from various field trips around Australia and also a survey of elasmobranchs for metazoan parasites from Malaysian and Indonesian Borneo in collaboration with **Janine Caira** (University of Connecticut) and **Kirsten Jensen** (University of Kansas). As well as new species and revised generic diagnosis, **Marcus, Leslie and Ian** plan to publish a phylogeny for the Hexabothriidae based on morphological characters.

CAMEROON

provided by Guy Lekeufack, leguyzo@yahoo.fr

The Fish Parasitology Group of the Department of Animal Biology and Physiology, University of Yaoundé 1 is headed by Professor **Abraham Fomena**. The group includes researcher Dr **Guy Lekeufack** and several students who are currently working on their theses or other projects in fish parasitology: **Elysé Nchoutpouen** (PhD), **Afred Kiampi** (PhD), **Marie Yali** (PhD), **Armél Fofou** (MSc) and **Lili Mbakop** (MSc).

Our main objectives are to identify wildlife parasites that could potentially become harmful to farmed fish species and to achieve a better understanding of parasite dynamics. We hope to use these data to predict/minimise outbreaks which will ultimately optimise fish growth in fish farms. Since 1985, much work has been done on myxozoans of fish from Cameroon. To reach our goals, in 2011 we conducted a comprehensive survey/taxonomic study of Myxosporidia of freshwater fish from many rivers in Cameroon. Several new species of myxozoans have been described along with some new host records (see Nchoutpouen & Fomena in *Journal of Applied Biosciences*; Nchoutpouen et al. in *Journal of Cell and Animal Biology*). We also analysed the structure and dynamics of the parasite populations in some fish species.

Currently we are actively looking to collaborate with other laboratories and international research groups that use molecular and electron microscopical techniques for the identification and description of myxosporeans. In December 2011, **Guy Lekeufack** ran a conference on bioscience, including research on fish parasites.

CANADA

provided by David Marcogliese, David.Marcogliese@EC.GC.CA

Our laboratory is based at the St. Lawrence Centre (Environment Canada) in Montreal, Canada. We study environmental parasitology in fishes and other aquatic fauna. In general, we have a two-pronged approach to our research. First, we use parasites as indicators of environmental stress, biodiversity and food web structure; and second, we study the combined effects of parasites and anthropogenic stressors, such as pollution on the health of fish and other aquatic fauna. We are currently examining parasite communities as indicators of ecosystem health in major tributaries of the St. Lawrence

River, in designated Areas of Concern in the lower Great Lakes, in national parks in eastern Canada, and in the Athabasca River and oil sands area of Alberta.

With Dr **Dan McLaughlin** (Concordia University, Montreal) and postdoctoral fellow Dr **Sean Locke**, we are using molecular techniques and barcodes in particular to discriminate species of larval trematodes (Diplostomoidea) in fishes, and the implications for parasite



community structure in freshwater fishes in the St. Lawrence River. In addition, we are attempting to resolve strigeid life cycles, phylogeny and biogeography (we welcome specimens from international colleagues and will provide full sequence information in return). Affiliated with this project, **Angela-Rose Lapierre** pictured left) recently completed her MSc (Concordia University) on the phylogeny of the Diplostomoidea using a combination of different molecular markers, morphology, and life history characteristics. This work will continue and expand into other taxa

parasitic in fishes. Angela has just started her PhD at Concordia, along with **John Forest**, who recently completed his MSc with **David Cone** at Saint Mary's University in Halifax, Nova Scotia. Also at Concordia, **Hubert Désilets** is pursuing his MSc and looking at competition and other interactions between species of *Diplostomum* in the eyes of fish.

We are completing studies on the feeding ecology and stock structure of yellow perch (*Perca flavescens*) in Lake St. Pierre, a fluvial lake in the St. Lawrence River which is also a UNESCO World Heritage Site and a Ramsar Convention wetland area. This work, which comprised the PhD of **Micheline Bertrand** (Université du Québec à Trois-Rivières), combines information derived from parasites, diet and stable isotopes to better characterize perch populations in this lake.

We have also been working actively on introduced species in the past few years, including both fish hosts and parasites. Biologist **Andrée Gendron** (pictured right with **Benjamin Marquis**, and **Hubert Désilets**) has been leading a study on parasites of the round goby (*Neogobius melanostomus*), recently introduced into the St. Lawrence River. She has been studying the colonization dynamics of its parasites and consequences for sympatric native fish species. We are also looking at the colonization dynamics of the Asian fish tapeworm (*Bothriocephalus acheiognathi*), recently introduced into the Great Lakes.



Dr **David Marcogliese** continues to coordinate the International Biodiversity of Stickleback Parasites project. In the past two years, with the assistance of former postdoctoral fellow Dr **Chris Blonar** (now at Nova Southeastern University in Florida) and international collaborators, we have made excellent progress in updating and analyzing our database.

provided by Russell H. Easy, reasy@dal.ca

Dr **Russell Easy** did his graduate research at the University of Dalhousie. His work focused on a molecular phylogeny of myxozoans. The objective was to classify those species of *Myxobolus* isolated from select environmental situations and to address the validity of traditional taxonomic methods and their use in classification of the myxobolids. In the process, **Russell** identified a new species of myxozoan and reclassified species of myxozoan which, based on traditional taxonomic techniques, were originally considered a single species. His doctoral and post-doctoral research explored host–pathogen interactions using *Lepeophtheirus salmonis* + Atlantic salmon and *Gyrodactylus* sp. + Atlantic cod models. Both of these latter projects included a molecular/proteomic approach to identify changes in response to parasitism.

provided by Lucy Lee, lle@wlu.ca

Parasitism – Immunity – Environment



Parasitisme – Immunité – Environnement

The Canadian Society of Zoologists (CSZ) celebrated 50 years of existence at its annual meeting held in Ottawa, Ontario this past May 16–20, 2011. The CSZ is the national voice for zoologists in Canada and is a strong society currently comprised of four sections including the Parasitology (PAR) Section. The PAR Section was established in 1974 to promote and advance the study of parasitic organisms and facilitate the exchange of information among parasitologists in Canada. It was renamed as the PIE (Parasitism, Immunity &

Environment) Section at the May 2011 meeting, reflecting a desire by its members to bring together a broader group of people interested in various aspects of infection, including not only the parasites but also aspects of host and their environments. The mission of the PIE section is to provide a venue for interchange among individuals interested in the interrelationships at all levels among infectious agents, the response of animals to these agents, and the environment in which these relationships exist.

At the May 2011 meeting, a symposium entitled “Comparative Aquatic Parasitology and Immunology” featured ichthyoparasitology talks by: Dr **Brian Dixon** (University of Waterloo) entitled “Immune responses to pathogens and parasites in ectothermic vertebrates” and **Lucy Lee** (Wilfrid Laurier University) entitled “Contribution of fish cell lines to parasitology”. We also honoured Dr **Dan McLaughlin** (Concordia University), with the Robert Arnold Wardle award, which recognises outstanding contributions to Canadian parasitology. **Dan** delivered a lecture entitled “Digenea, Diversity and DNA” and is pictured here (right) receiving the award from Dr **Todd Smith** (left). The previous awardee was **David Marcogliese** (2009).



HUNGARY

provided by Csaba Székely, szekely@vmri.hu

Fish pathological research in Hungary is carried out at the Veterinary Medical Research Institute of the Hungarian Academy of Sciences. Two research teams in this institute (the Fish Pathological and Parasitological Research Team and the Fish Parasitological Research Team) study fish parasite related problems; http://www.vmri.hu/index_eng.htm

Members of the Fish Pathological Research Team (**Csaba Székely** team leader, **Kálmán Molnár** senior researcher, **Gábor Cech** PhD student, **Hafiz Borkhanuddin** Malaysian PhD student and **Györgyi Ostoros** technician) conducted monitoring studies on parasitic infections of Lake Balaton fishes and intermediate host organisms. Advances have been made in elaborating fast diagnostic methods (LAMP) to identify parasites from fish and food organisms.



In their myxosporean research, the group has: examined the validity of *Myxobolus* spp. deposited in GenBank; studied systematics of morphologically similar parasites infecting closely related fishes using morphological and molecular methods; followed long-term intrapiscine development of some young plasmodia and identified them by their DNA as known *Myxobolus* species. Cooperative studies with Malaysian and Indian specialists have identified several known myxosporean parasites and new species yet to be

described. Further studies have been conducted on the nematode *Anguillicoloides crassus* and an index was created for evaluating its pathogenicity. For more information and publications see http://www.vmri.hu/szekely_csoport/english/index_english.html

Four researchers and three undergraduate students are currently working in the Fish Parasitology Research Group. The research coordinated by Dr **Edit Eszterbauer** focuses on myxozoans. **Szilvia Marton** has recently submitted her PhD thesis on the experimental and molecular investigation of host-specificity of *Myxobolus* species with special regard to the intraoligochaete development of the parasites. Dr **Dennis Kallert** recently started his second year in the group as a postdoctoral research fellow. With the members of the team, he aims to study the correlation between the inbreeding status of various brown trout populations and the susceptibility to *Myxobolus cerebralis*, causing whirling disease in salmonids. This spring, biologist **Barbara Forró** joined to the group and she plans to start her PhD soon. Undergraduate student **Dóra Sipos** recently graduated from her biology degree and she and her supervisor, Dr **Edit Eszterbauer**, are currently working on the molecular characterisation of several *Sphaerospora* species from cyprinids in cooperation with Czech researchers. The team also has cooperative projects with colleagues in Germany, Austria and Tunisia. For more information and publications go to: http://www.vmri.hu/fishparasitology/index_en.html



IRAQ

provided by Prof Dr Z.I.F. Rahemo, zohair_rahemo@yahoo.com

Our research on parasites of freshwater fishes continues at three universities in Iraq.

At the Department of Biology, College of Science, University of Mosul, **Prof Dr Zohair I. F. Rahemo** (pictured right) is continuing his work on fish parasites from the River Tigris as it passes through Mosul City. He has discovered five species, including: two protozoans, *Trypanasoma acanthobramae* sp. n. from the blood and *Myxobolus pfefferi* from the gills; one digenean, *Pseudochetosoma salmonicola*, from the gall bladder; one larval cestode, *Ligula intestinalis*, from the body cavity; and one crustacean, *Ergasilus mosulensis*, recovered from the gills. A trial was carried out to see if there is a relationship between the occurrence of parasites and the condition factor of the fish. The impact of *L. intestinalis* and histology of host gonads were also investigated.



At the Department of Biology, College of Education, University of Salahddin, Erbil, Kurdistan, **Prof Dr Shamall M.A. Abdulla** and his students described two new species, *Trichodina erbilensis* and *T. kurdistani*, from the skin, fins and gills of the Asian catfish, *Silurus triostigus*, collected in the Greater Zab River as it passes through the Guwer district of Erbil city, in the Kurdistan region of northern Iraq, between June 2007 and July 2008. Taxonomic and morphometric data presented for these trichodinids was based on wet silver nitrate impregnated specimens. The adhesive disc of these two species is probably more closely related to those of *T. gobii* and *T. ranae*, respectively.

At the Marine Science Center (Basrah University) **Assistant Professor Majid Abdul-Aziz Bannai** conducted various research projects on parasites of Iraqi fishes caught in the Arabian Gulf. This work includes: a descriptive study of two parasitic copepods of the genus *Hatschekia*; a new record of a parasitic nematode from *Sillago sihama* and *Johnius belangerii* in northwest Arabian Gulf, including comments on its host relationships; records of trypanorhynch cestodes from fishes of Kho Abdullah, Arabian Gulf; and an investigation of endoparasites from the common carp, *Cyprinus carpio*, captured south of Al-Hammar Marshes.

MEXICO

provided by Hugo Mejía-Madrid, hugo_mejia_madrid@ciencias.unam.mx

Hugo Mejía-Madrid published two phylogenies this year. The first was on philometrids which included *Mexiconema cichlasomae*. The other was on cucullanids and included new 18S sequences for *Dichelyne mexicanus* and *Cucullanus dodsworthi*. Hugo also published a paper this year on a new species of *Cucullanus* from *Mycteroperca bonaci* off the coast of Yucatán.

NORWAY

provided by Lutz Bachmann, bachmann@nhm.uio.no, Tor Bakke, t.a.bakke@nhm.uio.no, and Phil Harris, p.d.harris@nhm.uio.no

At the **Natural History Museum** (Department of Research and Collections), **University of Oslo**, Norway, the **Evolutionary Parasitology Group** addresses genomic, taxonomic, systematic, phylogeographic and ecological issues of gyrodactylid monogeneans, particularly those that parasitise salmonid hosts in Europe.



The pathogenic *Gyrodactylus salaris*, infecting Atlantic salmon, causes significant ecological and economic damage and is the focus of our attention, but we also work on other species, such as *G. thymalli*, *G. teuchis* and *G. truttae*. Current projects concentrate on (i) next-generation sequencing of the *G. salaris* genome and comprehensive description of the microRNA complement, (ii) the mitochondrial haplotype diversity and phylogeography of *G. salaris* and *G. thymalli*, (iii) the role of the environment in determining the outcome of *Gyrodactylus* infections on salmonid hosts. Funded by the Norwegian *artsdatabanken*, we also study the Norwegian gyrodactylid fauna by screening the fish in the institutions collection for parasites.

The group currently consists of Profs. **Lutz Bachmann**, **Tor Bakke** and **Philip Harris**, the Yggdrasil fellow **Paula Marcotegui**, PhD fellows **Christoph Hahn**, **Bastian Fromm** and **Raul Ramirez**, Masters student **Susanna Lybæk**, technicians **Ann-Helen Rønning** and Dr **Eve Zeyl**, and the interns **Susann Burow** and **Joost Grond**.

For further information you can also check <http://folk.uio.no/bachmann/>, or <http://www.facebook.com/pages/Lutz-Bachmann-Research-News/283896084959500>

PORTUGAL

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

The **Animal Pathology Group** of CIIMAR – CIMAR Associated Laboratory, University of Porto, headed by **Aurélia Saraiva** (amsaraiv@fc.up.pt) and **Cristina Cruz** (cfcruz@fc.up.pt) includes other senior researcher team members: **Jorge Eiras** (jceiras@fc.up.pt); **Carlos Azevedo** (azevedoc@icbas.up.pt), **Fernanda Russel-Pinto** (russell@icbas.up.pt), **Graça Casal** (gcasal@icbas.up.pt) and **Maria João Santos**.

Several students or collaborators are also currently working on their theses or other projects in fish and invertebrate parasitology: **Margarida Hermida** (PhD), **Francisca Cavaleiro** (PhD), **Luis Rangel**, **Inês Reisinho** (MSc), **Daniel Jerónimo** (MSc), **Bruno Carvalho** (MSc), **Ricardo Castro** (MSc) and **Ana Moreira Silva** (BSc).

One of the main objectives of this research team is to contribute to the knowledge of fish parasites which have significant impacts in fisheries, aquaculture and public health. Several projects are running:

- Parasites of the blackspot seabream (*Pagellus bogaraveo*) as a tool for stock discrimination

- Survey of parasites from fish farm turbot (*Scophthalmus maximus*)
- Parasites of marine fish from Alagoas, Brazil
- Apicomplexa and Myxozoa from seabass (*Dicentrarchus labrax*), seabream (*Sparus aurata*) and estuarine polychaetes
- Trematode life cycles using morphology and molecular tools
- Ectoparasites of Atlantic mackerel (*Scomber scombrus*)

More detailed information about our previous work and publications can be seen at the web page: <http://www.fc.up.pt/zoo-ant/seccoes/patol/patol.html>; http://www.cimar.org/CIIMAR/en/lab_pathology.htm#labstop

Parasitological research at the Madeira Archipelago, University of Madeira, is headed by **Graça Costa** (gcosta@uma.pt) and includes surveys of: the pelagic fish species *Trachurus picturatus*, the benthic fish species *Serranus atricauda* and various deep-water fish species.

Some results on helminth parasites of *Trachurus picturatus* from off the Madeira Archipelago have already been published. Further data comparing diversity of helminth parasites of *T. picturatus* from Madeira and Canary Islands will be submitted for publication by the end of 2011. *Serranus atricauda* collected off Selvagens Island were infected with two nematode taxa, one trypanorhynch species and one acanthocephalan species. Further investigations of *S. atricauda* will compare the parasite fauna off Selvagens Island with two different sampling locations off Madeira Island. Additionally, helminth parasites were sampled from a deepwater shark, *Centrophorus squamosus*, caught by the commercial fishing fleet. A deepwater fish, *Aphanopus carbo*, was also sampled specifically for nematodes and the acanthocephalan *Bolbosoma vasculosum*, with a view of conducting molecular studies.

SPAIN

provided by Dolors Ferrer, dolors.ferrer@udg.edu,
and Lúdia Sarrà, lidia_sarra_alarcon@hotmail.com

Two PhD studentships on the levels of parasitism in several commercially exploited fish species from the NW Mediterranean are being undertaken at the University of Girona (Spain).

PhD student **Dolors Ferrer** (pictured right with **Lúdia Sarrà**) is currently evaluating the macroparasites of the commercially exploited species *Merluccius merluccius*, *Engraulis encrasicolus* and *Mullus barbatus* captured in the NW Mediterranean. The aim of her thesis is to establish a comparison between the condition and the reproductive potential of those individuals affected by different intensities of parasitism. For each individual, the condition, the reproductive potential and the infection by macroparasites are being evaluated. Some preliminary results of her research were presented at the conference organised by the COST Action FA0601 “Fish Reproduction and Fisheries” (FRESH) held at Vigo (Spain) in May 2011.



Lúdia Sarrà is doing her PhD on the European conger (*Conger conger*). She is studying the feeding behaviour, reproduction and levels of parasitism on samples captured in the

NW Mediterranean. The prevalence of anisakid parasites will be evaluated in this scavenging host species and compared to that in non-scavenging species to determine whether there is a relationship between host feeding habits and nematode prevalence.

These thesis are being conducted within the framework of the 3-year project “**Health of exploited fish species: relationship between parasitism, condition and reproductive potential**”, financed by the Spanish Ministry of Science and Innovation (ref. CTM2009-08602), in which seven researchers from the University of Girona (Animal Biology - Ichthyology research group <http://www.udg.edu/ictiologia>), the CNRS (France) and the University of Perpignan (France) have joined forces to elucidate for the first time the links between fish parasitism and fish reproduction and productivity (<http://salutipeix.udg.edu/es/project.html>). Other activities carried out recently by this group are the workshop “*Marine Exploited Fish Health*” (<http://salutipeix.udg.edu/es/workshop.html>), in which several internationally renowned parasitologists attended, and the scientific dissemination website “*Salutipeix*” (<http://salutipeix.udg.edu/es/inicio.html>), which aims to inform the general public about the benefits and risks of fish consumption and the necessity to keep healthy oceans to safeguard the quality of seafood.

UNITED KINGDOM

provided by Jess Stephenson, StephensonJF@cardiff.ac.uk
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Fish parasitology is progressing well at Cardiff University. This year **Loys Richards** obtained her PhD, with her work highlighting the importance of host behaviour in driving gyrodactylid transmission (Richards et al. 2010). **Loys'** work on fish behaviour was conducted in aquaria, but now PhD student **Fran Hockley** is taking this a stage further by investigating disease transmission in artificial flumes. **Fran** is interested in the trade-offs between fish swimming behaviour in complex environments vs. the risk of infection. **Fran** is also working with invasive parasites, including *Pseudodactylogyrus* spp. and *Anguillicoloides crassus* on the endangered European eel. In 2011 she presented her initial findings at the British Society for Parasitology (BSP) meeting at Nottingham University in April and at Cefas in June, and had her first paper published on parasites of the invasive pumpkinseed (Hockley et al. 2011). Invasions are also of relevance to **Ellie Sherrard-Smith** (PhD student), who is trying to develop a molecular method to identify the invasive parasites *Pseudamphistomum truncatum* and *Metorchis albidus* in their intermediate hosts, cyprinid fishes.

Bettina Schelkle's PhD focuses on the biology and control of gyrodactylids with her work being presented this year at the BSP and published in *Acta Parasitologica* (Schelkle et al. 2011). **Bettina** has been investigating how fish avoid their natural parasite fauna in extreme environments, such as the hydrocarbon rich conditions of the Pitch Lake, Trinidad. Unfortunately, the effective anti-parasitic component of pitch is volatile/unstable and therefore unsuitable as a treatment (Schelkle et al. submitted). However, **Bettina** is also testing a range of botanicals against gyrodactylids, and she is not alone in the research group with her quest for effective anti-parasitic treatments. **Catrin Williams** (pictured right) is a PhD student



looking at key parasite-specific biochemical pathways in *Spironucleus vortens* that could be exploited for chemotherapy using garlic-derived compounds rather than metronidazole. This year she visited Dr **Miguel Aon** (Johns Hopkins University, MD) and Dr **Nigel Yarlett** (Pace University, NY) while investigating redox dynamics and intercellular communication in *S. vortens*. **Catrin** presented her findings at the VI European Congress of Protistology in Berlin.

We were sorry to say goodbye to Marie Curie (MC) Fellows Drs **Pati Faria** and **Mireille Johnson** from the lab, but they left us with valuable insights into the genetic diversity of gyrodactylids and paved the way for our incoming MC fellow Dr **Gabrielle Archard**. **Gabrielle** has joined us after a 3 year post doc in the US working on fish personality and stress hormones in poeciliids (guppies and *Brachyrhaphis episcopi*). She is now focusing on how host (guppy) personality and stress responses affect susceptibility to parasites (*Gyrodactylus* spp.) and the likelihood of transmission between individuals, with a view to determining how disease spreads within and between populations. We were also pleased to welcome **Jessica Stephenson** and **Jo James** to the lab. **Jess** recently commenced her PhD studies and will investigate how parasitism by *Gyrodactylus* spp. affects mate choice in guppies. **Jo** recently graduated with the highest BSc Zoology mark at Cardiff and is currently investigating how fish and parasites are affected by thermal clines.

In May, Dr **Jo Cable** visited Cardiff's field station in Borneo (<http://www.cardiff.ac.uk/biosi/facilities/danaugirangfieldcentre/index.html>), and together with a former PhD student from our lab, Dr **Milena Salgado-Lynne**, collected lots of monogeneans from freshwater fish. Equally exciting, they spent time in the coral triangle in the Sulu Sea investigating the possibility of a new marine field station for Cardiff in collaboration with Reef Guardian (<http://www.reef-guardian.org/>). Finally, the lab made their annual trip to Tobago in June to continue a research project on cleaner fish.

IN MEMORIAM

Dr Vernon Everett Thatcher (1929 – 2011)



The South American fish parasitology community was struck by the news of the passing of Dr **Vernon Everett Thatcher** on the morning of October 13th, 2011. Vernon captivated everyone that knew him personally and professionally, as his distinct personality and his incredible sense of humour would rapidly break the ice.

Native of Medford, Oregon (USA), he had a typically northwestern childhood, with

activities closely associated with the nature of the region. Early in his youth, Vernon was a butterfly collector and a competent taxidermist. At 14, he became interested in South

America through readings and enrolled in a Spanish course in school, which he continued at University. This would later define his professional choices.

Vernon graduated in 1952 from the Oregon State University (OSU) and found time, between 1952 and 1954, to get his Master's degree under Dr Ivan Pratt on the helminths of the Pacific Terrapin. I meant "found time" because during that time he was drafted by the army as a member of the medical core. After several years of working in the army in Europe, he returned to the States and worked at the Texas A & M Research Foundation in Grand Isle as an oyster biologist. Vernon then enrolled in the PhD program at Louisiana State University, in Baton Rouge.

In 1961, he completed his PhD program under Dr Harry J. Bennett with studies on the trematodes of reptiles from Tabasco, Mexico when he stepped into the tropics for the first time! After completion of his studies, despite being offered positions in the States, Vernon decided to step back into the tropical Americas and became an employee of the Gorgas Memorial Institute in Panama City, where he studied the cycle of leishmaniasis and echinococcosis.

In 1967, with Dr Paul Beaver, Vernon moved to Colombia, where he worked and taught at the Universidad del Valle, in Cali. There, he married Leah, who passed away over 20 years ago. They moved to Rio de Janeiro, Brazil in 1975 where he taught at the Universidade Federal Rural do Rio de Janeiro for two years. Vernon had been a field person in the tropics all these years, an adventurer, indeed, hunting and fishing for parasites under difficult conditions that only people that worked in the tropics know and most would consider unbearable. After two years in Rio, Vernon was hired by the Instituto Nacional de Pesquisas da Amazonia (INPA) as the PI of the Laboratory of Fish Parasitology in Manaus.

The time at INPA was his most prolific. Vernon's contributions to the parasitology of wild animals, especially fishes, in the tropics added more than 150 papers in the area of taxonomy of parasitic Protozoa, Platyhelminthes, Nematoda, Acanthocephala, and Crustacea. He authored several books, including "Amazon Fish Parasites" (two editions), "Isopods of South American Fishes", and "Trematodeos Neotropicais". Vernon was also responsible for the first extensive efforts in the understanding of the fauna of Monogeneoidea/Monogenea, Ergasilidae (Copepoda) and in the neotropical region in collaboration with many other scientists, including Dr Delane Charles Kritsky, Dr Brent Nickol, Dr Michel Jegú, Dr F. Moravec, among many others. In Manaus, Vernon re-encountered and married Dr Betsy Dutary, a world known virologist that he knew as a colleague and sweetheart during his time at Gorgas Memorial Institute in Panamá City.

Since he considered that a parasitologist should be capable of working with many groups, Vernon was always looking for something new to work on. He completed his contributions to fish parasitology studying Isopoda of marine and freshwater fishes from Brazil. After retirement from INPA in 1999, he moved to Curitiba, Brazil, where he acted as a visiting professor until his last days.

Dr Vernon Thatcher leaves no children but he has many scientific sons and daughters and a great number of friends that learned to love him and his always well-placed jokes. He will be missed as a friend and as an exciting scientist who contributed greatly to the understanding of tropical zoology.

More about his unique life is available in the book by his sister, Jeanette Thatcher Marshall, entitled "*Jaguars, Fish and Microscopes: An Oregon Zoologist's conquest of Tropical America*" Thatcher Publications Inc., 263 pp. Contact Marie Marshall Garsjo, Texasgarsjo@sbcglobal.net for additional information.

Walter A Boeger, PhD

EDITORIAL POLICY

Please note that material for the next issue should be sent to the Editor, Dr Leslie Chisholm [e-mail: leslie.chisholm@samuseum.sa.gov.au] Parasitology Section, The Science Centre, South Australian Museum, North Terrace, Adelaide 5000, South Australia, Australia; **before** November 15, 2012.

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 and do not send image files as PDFs).

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Thank you

Leslie Chisholm

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