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EDITORIAL

This year marks two decades of the newsletter. I for one always enjoy reading about the work being done worldwide in ichthyoparasitology. It is particularly gratifying to see that the research groups and laboratories are full of young and enthusiastic students; a good sign that this exciting field will continue to flourish. I thank everyone who took time out of their busy schedules to contribute their news and David Gibson and Kate Hutson for their editorial assistance. I would also like to note that David has retired as editor of *Systematic Parasitology* after 26 years of service. His meticulous attention to detail and helpful comments will be very much missed. Finally, I thank Anna Kohn, who, after many years as Regional Representative for Brazil, has decided to pass the torch onto any other Brazilian fish parasitologist who would like to take on this role; please let me know if you are interested. If you wish to contribute to the next issue of the Newsletter (Number 21), the deadline date for submission is **November 15, 2013**. 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. The South

America Hotel, where the Symposium will be held, is located about three blocks from the famous Copacabana and Ipanema beaches and has affordable rates; there are plenty of other hotels and hostels in the surrounding area and restaurants.

Researchers and all other interested parties from around the world are welcome to join us there and can read more about the conference and register their interest by visiting our homepage (<http://zoo.bio.ufpr.br/ISM7>). Please also follow us 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! An intense programme is planned, including preliminary talks, mini symposia, oral presentations and poster sections.

The scientific programme will provide a dynamic platform for the vibrant and fruitful exchange of your new findings, research questions and state-of-the-art techniques. We are sure that the diversity of themes will be the most favourable platform for strong and positive collaborations between monogenean researchers. Competitive awards for students and young scientists will be offered. In addition, a diverse and enjoyable programme of social activities will also be provided in order to showcase the best of our traditions and culture.

We look forward to welcoming you to our country in 2013. Rio, Brazil and South America are waiting for you. Discount registrations are available until December 31, 2012.

On behalf of Organizing Committee

Walter Boeger
Anna Kohn (honorary president)
Maria Regina Boeger
Simone Cohen
Marcus Vinicius Domingues
Marlus Bueno da Silva
Marilia de Carvalho Brasil Sato

CURRENT RESEARCH ACTIVITIES IN VARIOUS COUNTRIES

AUSTRALIA

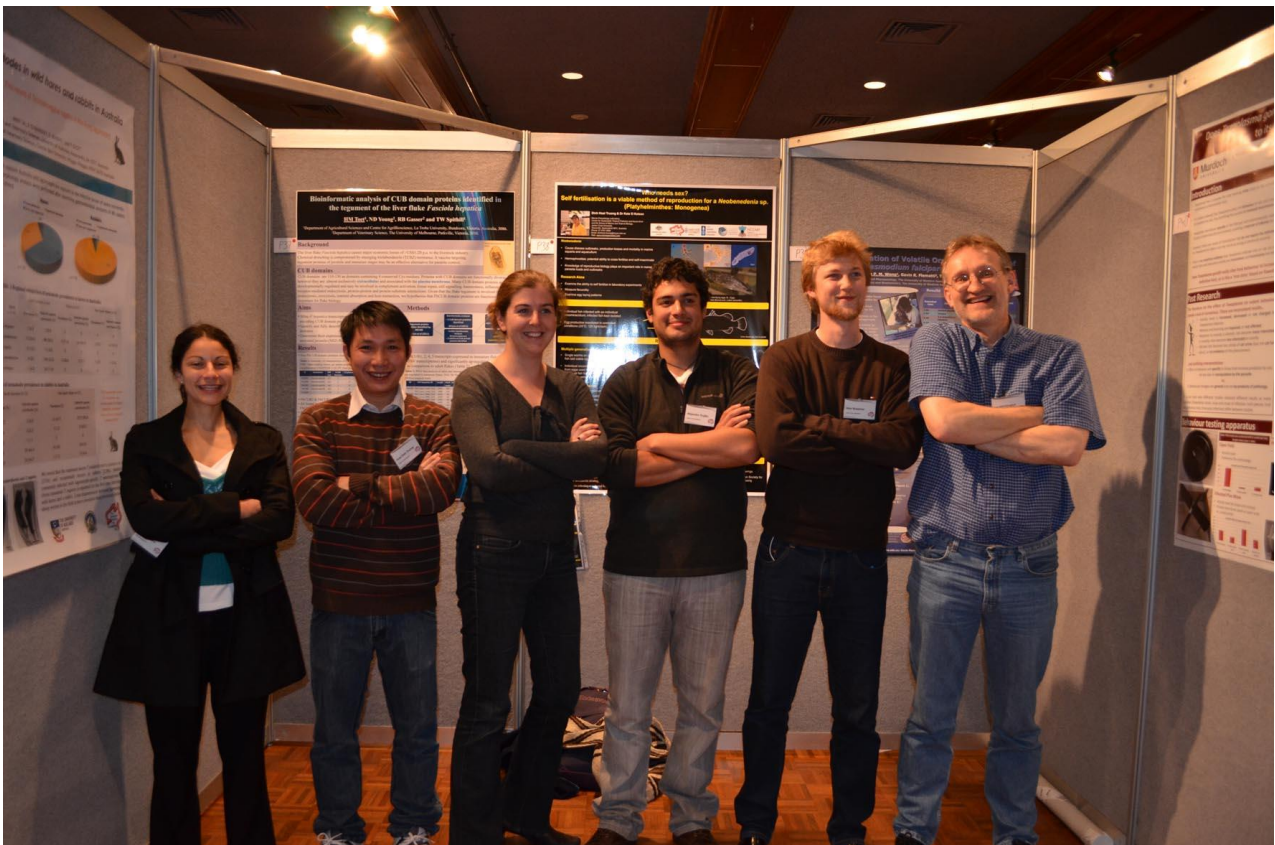
provided by Ian Whittington, ian.whittington@samuseum.sa.gov.au
& Kate Hutson, kate.hutson@jcu.edu.au

There has been plenty of activity this year in the *Marine Parasitology Laboratory* at James Cook University in Townsville, Australia (see www.marineparasites.com) as we continue our research on parasites of tropical aquaculture fishes. We recently welcomed **Terrence Miller**, who joins the team for the next three years as part of a Smart Futures Fellowship and Queensland Tropical Agri and Aquatic Sciences Grant. **Terry** will lead a new research project, “Integrated management of parasite infections in tropical aquaculture” working with financial industry partners (King Reef Seafoods Pty Ltd and Coral Seas Pty Ltd) and joint investigators **Kate Hutson** (James Cook University, Townsville) and **Richard Knuckey** (Northern Fisheries Centre, Department of Agriculture Fisheries and Forestry, Queensland).

Postgraduate students in the *Marine Parasitology Laboratory* (supervised by **Kate**) have had a productive year. **Dinh Hoai Truong** was awarded a High Distinction for his MSc thesis titled: “Survival strategies of an insidious fish ectoparasite, *Neobenedenia* sp.”.

Thane Miltz also received High Distinction for his Honours thesis: "Efficacy of garlic (*Allium sativum*) extract for management of a marine monogenean ectoparasite in aquaculture." **Alexander Brazenor** recently began his PhD and will examine the biology of *Neobenedenia* spp., whereas MSc student **Alejandro Trujillo Gonzalez** is preparing his thesis on interactions between ectoparasites and their host fishes at a cellular level.

One of the laboratory highlights this year was a visit to Launceston, Tasmania, for the Australian Society for Parasitology (ASP) annual conference, where we met up with fellow marine parasitologists **Ian Whittington** (South Australia Museum/University of Adelaide) and PhD student **Sarah Catalano** (University of Adelaide). Pictured from left to right (Sarah Catalano, Dinh Hoai Truong, Kate Hutson, Alejandro Trujillo Gonzalez, Alexander Brazenor and Ian Whittington).



At the ASP, the Marine Parasitology symposia featured invited speakers **Stewart Johnson** (Pacific Biological Station, Nanaimo, Canada), who addressed the biology, ecology and epizootiology of sea lice on wild and farmed salmonids in British Columbia, **Brian Jones** (Department of Fisheries, Western Australia), who revisited an old dataset of parasites from orange roughy (*Hoplostethus atlanticus*) and **Terry Miller**, who gave an overview of the Census of Marine Life and Census of Coral Reefs projects to understand parasite richness in coral reef ecosystems.

The Aquaculture session focused on aporocotylid blood flukes and included presentations by: **Catarina Norte dos Santos** (University of Tasmania-Launceston) on the distribution of *Cardicola forsteri* eggs in gills of southern bluefin tuna (*Thunnus maccoyii*) in South Australia; **Nicole Kirchhoff** (University of Tasmania-Launceston) on *C. forsteri* infections in ranched *T. maccoyii* in South Australia; **Sho Shirakashi** (Kinki University, Japan) on

control of blood flukes in cultured Pacific bluefin tuna (*Thunnus orientalis*) in Japan; and **Kate Hutson** on parasite threats to mariculture of barramundi (*Lates calcarifer*) and mullet (*Argyrosomus japonicus*) in Australia.

The Marine Parasites session, included presentations by **Ian Whittington** on the use of simple videomicroscopy to record monogenean behaviours (featured a 3-minute video of a *Neobenedenia* species from barramundi in north Queensland) and **Alex Brazenor** on the effect of temperature and salinity on the life-cycle of the same *Neobenedenia* species. **Melanie Koinari** (Murdoch University, Western Australia) spoke on *Anisakis* larvae from fishes in the waters of Papua New Guinea and **Shokoofeh Shamsi** (Charles Sturt University, New South Wales) discussed how to differentiate *Terranova* and *Pseudoterranova* larvae in Australian fishes.

Lesley Warner/Smales (Honorary Researcher, South Australian Museum) made a return visit to the Natural History Museum, London to access their Acanthocephala collection and literature.

Leslie Chisholm (South Australian Museum) has been busy finishing off some monogenean descriptions from a survey of elasmobranchs for metazoan parasites from Malaysian and Indonesian Borneo in collaboration with **Janine Caira** (University of Connecticut) and **Kirsten Jensen** (Kansas State University). She has also been moving the South Australian Museum Parasitology slide collection into a brand new slide storage compactus system.

Australian parasitologists, **Ian Beveridge**, **Terry Miller** and **Ian Whittington**, were part of an international team led by **Jean-Lou Justine** (Paris Museum), and including **Geoff Boxshall** and **Rod Bray** (Natural History Museum, London), **Frank Moravec** (Academy of Sciences, Czech Republic) and **Jean-Paul Trilles** (Université Montpellier), who published an Open Access paper in *Aquatic Biosystems* (see <http://www.aquaticbiosystems.org/content/8/1/22>) about parasite biodiversity on coral reef fishes off New Caledonia. A coordinated attempt to raise the profile of ichthyoparasitology included separate press releases from each author's institution and appears to have been successful, because the paper enjoyed the status of "Editor's Pick" and has been "highly accessed" (3,500 views by the end of November 2012)!

BRAZIL

provided by Anna Kohn, annakohn@gmail.com

After 52 years of work at the Oswaldo Cruz Institute, **Anna Kohn** (annakohn@gmail.com) has passed the leadership of the Laboratory of Helminth Parasites of Fishes, Rio de Janeiro, Brazil, to **Simone C. Cohen** (scohen@ioc.fiocruz.br). Anna continues as a researcher in the laboratory of the Brazilian National Council of Research. This lab also includes doctors **Berenice M.M. Fernandes** (berenice@ioc.fiocruz.br), **Marcia C.N. Justo** (marciajusto@ioc.fiocruz.br) and **Melissa Q. Cárdenas** (melissaq@ioc.fiocruz.br).



The projects developed by the group include studies of fish parasites found in the reservoir of the hydroelectric power station of Itaipu, Paraná State. Recent publications consist of a host-parasite list and the descriptions of nine new species of dactylogyrids and a new digenean from this region.

In 2012, **Marcia** and **Anna** continued their studies on parasites of tuna and published a description of a new genus of the Digenea. They are developing studies on the histopathology of didymozoids, as **Marcia** recently completed her post-doctoral project on this subject.

Berenice, **Simone** and **Melissa** are also studying helminths from marine fishes caught along the Rio de Janeiro coastline and helminths of freshwater fish from river basins in the northern region of Brazil. A new species of nematode and studies on digenean metacercariae from Amazonian fishes have been published by **Berenice** and **Melissa**, with collaboration of **Frank Moravec** (Czech Republic), **Aprigio Mota** and **José Celso Malta** (INPA, Brazil), and **Marcos Tavares-Dias** (Embrapa, Brazil). A description of a new genus and species of digenean in a freshwater fish from Tocantins River is also in press.

The book “*South American Trematode Parasites of Fishes*”, published by **Kohn, Fernandes & Cohen** in 2007 is available free upon request to the authors, and a catalogue of the digenean parasites of South American amphibians is currently being prepared.

IRAQ

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

Fish parasites still attract many Iraqi scientists working in a diversity of research areas at four universities.

At the University of Mosul, Prof Dr **Zohair I. F. Rahemo**, Dr **Sulaiman N. Ami**, and Dr **Khalid H. Taha** investigated the condition factors, food contents and the parasitic fauna of *Barbus esocinus* in the Nineva Governorate. This is one of the most economically important fishes in Iraq. The study revealed three species of parasites, including the monogenean *Diplozoon barbi* (a new host record in Iraq), the cestode *Bothriocephalus gowkongensis* and the copepod *Pseudolamproglana annulata*. Pictured right is Prof Rahemo at Terawa fish market.



At the University of Salahaddin, various fish parasitology projects have been carried out in the Department of Biology, College of Education. The head of the department, Prof Dr **Shamall M. A. Abdulla**, and his co-author, Mr **Samir Billal**, have been working in collaboration with **Frank Moravec** (Czech Republic) to describe two species of *Rhabdochona* (Nematoda: Rhabdochonidae) from the cyprinid fish *Luciobarbus kersin* (Heckel) in northern Iraq. They also investigated *Procamallanus siluri* (Nematoda: Procamallanidae) from *Silurus glanis* in the Greater Zab River in the Kurdistan Region. This is the first record of this parasite in Iraq.

Prof **Abdullah** supervised a thesis submitted by **Kamaran Saadi Mama** in 2012 entitled "A comparative study on the parasitic fauna of the common carp *Cyprinus carpio* from Ainkawa Fish Hatchery (Erbil) and Lesser Zab River in Kurdistan Region, Iraq." Mr **Samir Billal**, Prof **Abdullah** and Prof **Rahemo** are currently carrying out a joint research project which includes histological and ultrastructural observations on a new species of *Senga* and they also plan to revise this genus.

At the University of Basrah, various teams of researchers are working on parasites of fishes in the region. In the Department of Marine Sciences, **S. K. Badr**, **A. Al-Daboon** and **T. M. Muhsin** are using histology to examine the effects of *Saprolegnia parasitica* on the skin and muscles of the goldfish *Carrassius auratus auratus*. In the Department of Marine Vertebrates, Marine Science Center, Mr **Majid A. A. Banai** is investigating lecanicephalidean cestode parasites from some Arabian Gulf fishes. Mr **Banai** and Mr **Abdul A. Jasim** are also studying cymothoid isopod parasites of marine coastal fish from the Arabian Gulf off Iraq.

In the College of Education at the University of Tikrit, Mr **Younis Y. H Al-Ayash** completed his MSc thesis entitled: “A study of prevalence of the helminth parasites for some fishes in the Tigris River passing through Tikrit City”. This work was supervised by Dr **Abdullah H. A. Al-Jubory** and Dr **Ilham A. A. Al-Tikrity**.

PORTUGAL

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

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

Several students or collaborators are also currently working on their theses or on other projects in fish and invertebrate parasitology: **Susana Pina** (Post-doc), **Francisca Cavaleiro** (PhD), **Luis Rangel** (PhD), **Eduardo Gonçalves** (PhD), **Sónia Rocha** (Fellowship), **André Baptista** (MSc), **Ricardo Castro** (MSc), **Suellen Dias** (BSc) and **Karízia Silva** (BSc). **Margarida Hermida** has just presented her PhD on “Parasites of the blackspot seabream, *Pagellus bogaraveo*, as biological tags for stock identification”.

The research conducted in the Laboratory of Pathology aims to improve our knowledge of the pathology of freshwater and marine species, principally fish. Some of the studies are performed on Portuguese species and others involve important tropical species, mainly from South America (Brazil) and Saudi Arabia. This has resulted in strong collaborations, which have been established for more than two decades. Current projects include:

- Parasites of the blackspot seabream (*Pagellus bogaraveo*)
- Survey for pathogenic agents of important aquaculture fish
- Parasites of marine fish from Alagoas, Brazil
- Apicomplexa and Myxozoa from seabass (*Dicentrarchus labrax*), seabream (*Sparus aurata*) and estuarine polychaeta
- Trematode life cycles using morphology and molecular tools
- Parasites of Atlantic mackerels (*Scomber scombrus* and *S. colias*), with special attention to *Anisakis* spp.

The **Project IDASSMyx** - Infection Dynamics of **Aquaculture Seabass and Seabream by Myxozoa** (FCOMP-01-0124-FEDER-020726 (Ref^a. FCT - PTDC/MAR/116838/2010)), headed by **Maria João Santos**, and collaborators (**Carlos Azevedo**, **Csaba Székely**, **Cech Gábor**, **Graça Casal**, **Susana Pina**, **Luis Rangel**, **Ricardo Severino**, **Sónia Rocha** and **Ricardo Castro**), commenced last April, and will run for 3 years.

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

SPAIN

provided by Jesús S. Hernández-Orts, jesus.s.hernandez@uv.es

The Marine Zoology Unit (MZU) of the Cavanilles Institute of Biodiversity and Evolutionary Biology, University of Valencia (UV) is headed by Prof **Juan Antonio Raga** (toni.raga@uv.es). The ichthyoparasitology research team comprises the following permanent researchers: Dr **Juan Antonio Balbuena** (j.a.balbuena@uv.es), Dr **Javier Aznar** (francisco.aznar@uv.es), Dr **Mercedes Fernández** (Mercedes.fernandez@uv.es) and Dr **Francisco Montero** (francisco.e.montero@uv.es).

One of our main objectives includes taxonomic, ecological and evolutionary studies of parasites from fish. We have at our disposal an experimental aquarium facility (pictured right), where we perform controlled infections of monogeneans on marine and freshwater fish with the aim of developing methods for control of these parasites.



To date, two fish parasitology projects are running in our laboratory: “Parasite communities of three species of sympatric mullets in the Spanish Mediterranean coasts” coordinated by Dr **Balbuena** and “Parasitic communities and associated pathologies of the Atlantic bluefin tuna (*Thunnus thynnus*) in natural and cultured populations” coordinated by Dr **Montero**, with the participation of other five research teams from Spain, Italy and the Czech Republic.

Researchers at the MZU, in cooperation with the Department of Microbiology of the UV, the Torre de la Sal Aquaculture Institute of the Spanish Council for Scientific Research (CSIC) and the Miguel Hernández University, are developing the “Valencian Network of Pathology Research and Development in Aquaculture” (REVIDPAQUA). The aim of this network, coordinated by Prof **Raga**, is to focus the research to solve problems on pathogens affecting cultured fish of Mediterranean fish farms, particularly those of the Valencian region.

In our laboratory, nine PhD students are currently writing their theses on fish parasites: **Abril Rodríguez** on the ecology of monogeneans from mullets of the western Mediterranean and the Yucatan Peninsula, Mexico; **Ana Ahuir** on the taxonomy, ecology and histopathology of parasites of the ocean sunfish *Mola mola* from the Western Mediterranean; **Ana Born** on transmission strategies of digeneans from snails in a Mediterranean lagoon; **Aigues Repullés** on blood flukes and monogeneans from gilthead seabream (*Sparus aurata*) and greater amberjack (*Seriola dumerili*) in the Mediterranean; **Eugenia Ferrer** on parasite communities of striped red mullet (*Mullus surmuletus*) in the Spanish Mediterranean and their value as biological tags; **Jesús Hernández** on acanthocephalans and nematodes in paratenic fish hosts from Patagonia, Argentina; **Neus Sánchez** on monogeneans of sparids (*Diplodus puntazzo* and *S. aurata*) from the Mediterranean; **Paula Mateu** on parasites of mesopelagic fish from the Spanish

Mediterranean; and **Raúl Míguez** on parasite communities of mullets from the Western Mediterranean and molecular studies on their trematodes.

Last December, **Gema Alama Bermejo**, supervised by Dr **Astrid Holzer** and Prof **Raga**, defended her PhD thesis on myxozoans and blood flukes of cultured and wild sparids from the Spanish Mediterranean. Currently, she is a postdoctoral researcher at the Institute of Parasitology, Biology Centre, Academy of Sciences of the Czech Republic. Additionally, three MSc theses, supervised Dr **Montero**, were defended during the year: **Azahar Panadero** worked on treatments of monogeneans on marine fish, while **Jessica Rosi** and **Javi Rodriguez** defended their theses on gill parasites of wild and cultured bluefin tuna, respectively.



The Marine Zoology Unit together with the Torre de la Sal Aquaculture Institute (CSIC) will host the **IX International Symposium on Fish Parasites** in Valencia, 2015. Detailed information about the work that we do in our research group can be seen at www.uv.es/zoomar

UNITED STATES

provided by Robin Overstreet, robin.overstreet@usm.edu and
Sascha Hallett, Halletts@science.oregonstate.edu

The **Robin Overstreet** Laboratory at the Gulf Coast Research Laboratory, University of Southern Mississippi, has been quite active. The parasite thrust leaned heavily on systematics, life histories, indicators of environmental health and various biological activities, and zoonotic diseases. In addition to focusing on helminths, studies are also being conducted on protozoans and viruses. Some members of the lab are pictured below.

Graduate students **Eric Pulis** and **Michael Andres**, using morphological and molecular methods, are currently trying to sort out the haploporid trematodes of the world. **Eric** is additionally working on a variety of studies involving trematodes, including trematodes in piscivorous birds. **Michael** is also studying the species of *Anisakis* in the Gulf of Mexico, as well as of *Contracaecum* worldwide. **Thomas Fayton**, a PhD student under **Richard Heard** and **Robin**, is studying the parasites of freshwater springs in Florida. **Jean**



Jovonovich, Ronnie Palmer, Janet Wright and Denny Hugg are involved with several of the ongoing investigations. We have hosted several visitors and undergraduate students working on fish parasites. **Stephen Curran**, who obtained his PhD at USM and is now a research scientist at GCRL, is involved with several studies; most of them involve trematodes of freshwater fishes, including haploporids, in Latin America, apocreadiids in southeastern and northeastern United States, and fish showing lesions after the Deepwater Horizon oil disaster. **Robin** is participating in most of the above mentioned studies as well as investigations on marine zoonotic parasites and diseases.

Sherman Hendrix, now retired from Gettysburg College, recently conducted a survey of metazoan fish parasites in portions of the Great Smoky Mountain National Park, Tennessee/North Carolina.

Professor **Jerri Bartholomew's** Lab at Oregon State University focuses on pathogens, particularly myxozoan parasites, which affect the health of wild Pacific salmon populations. We are investigating disease effects on wild populations, interactions between hatchery and wild fish, climate change effects on disease and parasite evolution and diversity. Dr **Sascha Hallett** (Research Associate) is developing DNA-based water sampling methodologies to directly detect and quantify waterborne fish pathogens. **Sascha** and Dr **Stephen Atkinson** (post-doc) are creating a searchable, online database for pathogens of Oregon's fishes. **Stephen** was awarded his PhD December 2011 at the University of Queensland; his advisors were **Jerri**, Dr **Rob Adlard** and Dr **Tom Cribb**, and his thesis was "*Diversity, life cycles and population genetics of freshwater Myxozoa from the Pacific Northwest of North America*". **Stephen** continues to discover and characterise local myxozoans from vertebrates and invertebrates. **Stephen** and **Matt Stinson** mapped patterns of *Ceratomyxa shasta* genetic types (ITS1) in various salmon and trout species across the Pacific Northwest. **Matt** was awarded his MSc in April and now works at the USFWS Lower Columbia River Fish Health Center in Willard, Washington State.

We continue to have several studies based on the Klamath River (Oregon/California), where the endemic myxozoan *Ceratomyxa shasta* causes enteronecrosis and mortality in juvenile salmon. As part of our long-term monitoring program in that river, Dr **Rich Holt** conducts sentinel fish exposures to gather information on disease severity in different salmonid species, MSc student, **Luciano Chiamonte**, is examining the role of thermal refugia in the health of Klamath River salmonids, climate change effects on phenology of the *C. shasta* life-cycle, and seasonal and spatial occurrence of *C. shasta* in the Willamette River. PhD candidate **Charlene Hurst** conducted combined field and lab studies with resistant and susceptible fish stocks to investigate the outcomes of mixed parasite genotype infections and how these outcomes could change depending on the timing and order of infection. Charlene secured a position with the NOAA Office of Education Graduate Sciences Program and will spend time in their Long Beach office as well as at OSU. Charlene and Jerri are collaborating with Professor **Oriol Sunyer**, University of Pennsylvania, and are using the salmonid-*C. shasta* relationship as a model for investigating mucosal immunity in a primitive host, and evolution of the immune system.

PhD student, **Michelle Jakaitis**, and MSc student, **Sean Roon**, are investigating disease risks and pathogen transmission between hatchery fish and naturally reared populations (wild fish) in the Willamette River system. They conducted sentinel fish exposures, collected water samples and sampled wild fish throughout the summer and fall for baseline monitoring of the fish micro- and macroparasites.



For more details about our research and members of our lab (pictured above) go to:
http://microbiology.science.oregonstate.edu/fac_bartholomew

The Seventh International Symposium on Aquatic Animal Health will be held in Portland, Oregon, USA, August 31 – September 4, 2014.

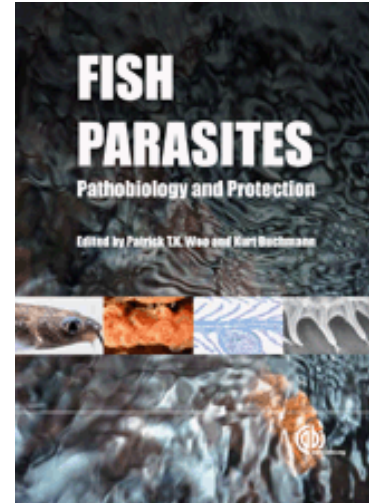
NEW BOOK

Fish Parasites: Pathobiology and Protection

Edited by: P.T.K. Woo and K. Buchmann

ISBN: 9781845938062; Published December 2011; Hardback, 400 pages; Price: £95.00 / \$180.00 / €125.00
Available from CABI: <http://www.cabi.org/>

Focusing on pathobiology and protective strategies against protozoan and metazoan parasites of fish, this book reviews the latest research on important parasites: those that cause financial hardships to the aquaculture industry, have been introduced to new geographical regions through transportation of infected fish, are pathogenic to groups of finfish and detrimental to production, are highly adaptable and not host-specific with worldwide distributions, and that may serve as disease models for studies on other pathogens. It also highlights gaps in our knowledge to help direct future research.



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, 2013.

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).

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.

Thank you

Leslie Chisholm

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