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WAVMA Elections for 2010 Officers at AGM

New Officers Elected

At the WAVMA Annual General Meeting held on July in Seattle, Washington USA, in conjunction with the American Veterinary Medical Association Convention, the new WAVMA officers for 2010 were elected.

We are pleased to welcome the following new individuals that were elected to serve in influential positions – Drs. **Fotini (Effie) Athanasopoulou** from Greece, and **Peter Werkman** from the Netherlands. Both come with a wealth of experience in aquatic veterinary medicine and will be great assets as WAVMA increases its activities and influence in furthering the interest and importance of aquatic veterinary medicine.

Along with re-elected individuals (Drs. **Chris Walster**—Secretary, **Dusan Palic**—Treasurer, **Paul Hardy-Smith**—Director-at-Large), and Dr. **Julie Tepper** (currently a Director-at-Large) who was elected as President-Elect, they will serve as members of the WAVMA Executive Board beginning January 1, 2010. Due to the unfortunate resignation of the current President-Elect (Dr. **Otis Miller**) Dr. Athanasopoulou will assume this position immediately.

Dr. Effie Athanasopoulou comes with strong credentials including a DVM, (University of Thessaloniki, Greece 1981), a Certificate in Veterinary Microbiology &



Dr. Fotini (Effie) Athanasopoulou

Parasitology (University of Thessaloniki, Greece -1983), an MSc in Aquatic Veterinary Medicine (University of Stirling, Scotland, 1985), and a PhD in Fish Parasitology/Pathology (University of Stirling, 1990). She is a member of the Fish Veterinary Society (UK), the European Association of Fish Pathologists, the Royal College of Veterinary Surgeons, the Hellenic Veterinary association, the World Association for the Advancement of Veterinary Parasitology, and a Representative of Greek Consumers Association (fish products) (INKA) to the EEC.



New Officers Elected—Continued from Page 1

Effie has been a lecturer at the University of Thessaloniki teaching fish diseases & Aquaculture to 3rd year veterinary students (1981-84), a Research Fellow at the University of Florida's Institute of Biomedical Aquatic Studies in Gainesville, USA where she worked on aquaculture and pathology of dolphin fish (*Coryphaena hippurus*) (1985-86). She also received a scholarship from the Greek National Foundation for postgraduate studies (1984-88) for 6 month research in Canada by the OECD (1998) for research on therapy of protozoans in fish and lobsters at the University of Prince Edward Island and in Nanaimo, Canada.

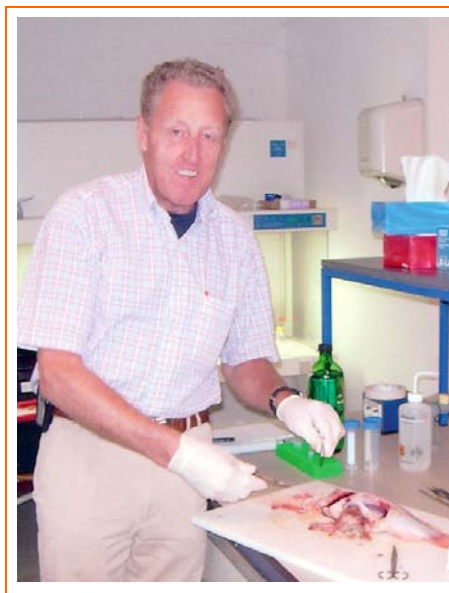
Since 1990 she has been a consultant to major and international fish farms in Greece dealing with health management of Mediterranean marine fish, salmonids, eels, cyprinids and sturgeons. She is currently Professor of Fish Diseases and Ichthyology (since 2000), the Dean of the Faculty of Veterinary Medicine (2004-2010), and the course Director (since 2005) in the Faculty of Veterinary Medicine, University of Thessaly.

As she outlined her vision and plans during her WAVMA tenure, she sees the need for the organization is compounded by the demands from owners of companion aquatic animals, aquatic food species producers, industries such as aquaculture, and governments for veterinary assistance in aquatic animal health and welfare, public health and seafood safety. Having worked in most of these sectors (academic sector, industry, research) she has a broad understanding of the needs of veterinarians willing to work in then field of aquatic health and hygiene and hopes to assist in solving problems, in providing consultations, in meeting demands from consumers and the industry and dealing with various issues that may rise from these sectors. She is particularly interested in collaborating with other experts in order to create the framework of a

correct and contemporary educational program of specialization in aquatic animal health for veterinarians worldwide and have worked hard to achieve this within European community being one of the main organizers of a potential European College of Aquatic Animal Veterinary Medicine, EBVS.

She believes this is a major issue, as education of veterinarians in aquatic animal health as well as the diagnosis of diseases of aquatic animals is not always in the hands of the profession. She feels it is important to identify and certify centers of excellence of aquatic veterinary training so that interested vets can go and obtain a high standard of education whether this is vocational training, CEPD or a formal qualification (certificate, diploma, MSc, PhD).

Another important issue for her is the dissemination of knowledge, up to date information and achievements within various fields of aquatic animal medicine. She is therefore willing to assist in creating a database / information centre within the association dealing with legislation, welfare issues for different species, medicines, alternative therapy methods, training, new research and disease aspects that can be available to any interested practicing vet worldwide.



Dr. Peter Werkman comes with unique assets, having a DVM from the State University in Utrecht, The Netherlands (1972) and receiving a Certificate of Qualification in 1972 from the Canadian Veterinary Medical Association. He is currently a member of the Royal Netherlands Veterinary Association (Koninklijke Nederlandse Maatschappij voor Diergeneeskunde) and the Fish Veterinary Society (UK).

He has been in private veterinary practice dealing mostly with large animals in the Netherlands (1972 – 1978) and then with companion animals and fish. Since early 2009 his private practice deals exclusively with finfish (food and pets) and is involved with recirculating systems for several food species, including eels, tilapia, African catfish, English sole, turbot. He's also involved with marine and freshwater aquaria and ponds with a special interest in goldfish, cichlids, koi and other species.

In 2000 he spent three weeks in Malawi helping with pet fish export problems. In 2007 he spent two days in Lagos, Nigeria helping problems with African catfish. In 1984 attended a 2-week fish disease course at the University of Stirling (Scotland) and the International Symposium on Aquatic Animal Health in Baltimore (USA). He has also attended the Eastern Fish Health Workshop (Charleston, South Carolina, USA) in 2006 and the Fish Veterinary Society meeting Fish Welfare Edinburgh (Scotland) 2004, and the WAVMA/WVA Annual Convention in Vancouver, Canada in 2008.

His vision and plans for fulfilling his leadership role in WAVMA involve helping to make the WAVMA better known to colleagues in the Netherlands and abroad and to try to stimulate veterinary schools and universities in Europe to start or improve education in aquatic medicine.

Left: Dr. Peter Werkman hard at work in his laboratory

EDITOR'S NOTE

It is unfortunate that I was unable to attend the WAVMA Annual General Meeting in Seattle last month. It was a great meeting with lots of interesting discussions. More about the meeting and the election can be found throughout this issue of *Aquatic Veterinary News*.

It is very fortunate, however, that I am a member of the World Aquatic Veterinary Medical Association, as I have access to many of the other benefits of the association, besides just the annual meeting, such as the website (WAVMA.org), which has archives of all the previous newsletters, which can be helpful in the future to find past articles. This is free to WAVMA members, but soon will be restricted to members only!

Also, the email listserv is free to all paid WAVMA members. There has been a lot of activity on this recently. This too is being limited to only active members, so if your dues aren't paid up, please do so now.

One thing that some members may find confusing, as I

myself was befuddled by it, is when dues are actually due. The WAVMA membership runs by calendar year, so your dues are due at the beginning of each year.

The annual General Meeting is held during the middle of the year to elect officers for the following calendar year. Our newly elected officers will assume their positions on January 1, 2010.

Please pay your dues if they are overdue so you will continue to receive the benefits from WAVMA membership. See page 25 of this issue of the *Aquatic Veterinary News* for the membership renewal form.

One final interesting note is that I will no longer abbreviate the *Aquatic Veterinary News* as AVN, as this could potentially be confused with another newsletter with that acronym. I decided against being forever labeled as the AVN Editor. It will be left to the reader's discretion to determine the other AVN to which I am referring.

Nick Saint-Erne, DVM
Aquatic Veterinary News Editor
saint-erne@q.com

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EXECUTIVE REPORTS

President's Report

It is good to see the Listserv used like it was intended. Over the past few weeks, there has been considerable chatter between members on various fish cases. Connecting colleagues around the globe to share clinical experiences is a fundamental function of the Association. The Listserv certainly isn't the perfect instrument for this, but it is a good start, and many thanks to David Scarfe for his hard work on set up and maintenance.

How can we make global communication and interaction even better between aquatic colleagues? I envision a global map on a revamped website where we are all geographic points that can be clicked on to bring up our bios, our subspecialties and expertise, our contact information, web link, etc. I also wonder whether WAVMA should pursue presences on some of the more "en vogue" internet tools, such as "Facebook" or "Twitter".

There is not unanimous support for this on the Board. Reasons for objections include security concerns, and I appreciate this, but believe there are ways to mitigate risks. The younger members of our discipline certainly are well acquainted with socializing and networking through the internet and many have suggested that WAVMA should go there. So, let me know what you think – especially the young students or new practitioners, who are more apprised of the strengths and limitations. We certainly would like to have someone spearhead this initiative! The call is out!

On another matter, I would like to expound on the latest WAVMA sessions that were held in conjunction with the American Veterinarian Medical Association's conference in Seattle in July. Kudos to Dr. Julius Tepper for his hard work in setting up the evening clinical case discussion and AGM. Apologies to all WAVMA members that it was another US venue. I am keenly aware of a sentiment out

there in the rest of the world that we are too American-centric, but realize that we are trying to get out of North America for subsequent meetings.

I should also point out that we have never had an elected American WAVMA President. The first one was from the UK (Dr. Ron Roberts); the second one: a Canadian (yes, I admit to being a "hoser"!); and our third one for 2010, Dr. Effie Athanasopoulou, is from Greece (congratulations, by the way!). So, I hope that that will quiet some of you!

To me, the highlight of the conference was the 5-day session organized by Drs. Helen Roberts, Tim Miller-Morgan, Steve Smith, Brian Palmeiro and Dave Scarfe. I sat through most sessions given by these and other lecturers, feeling like I was hearing clinical cases from traditional species lectures. Furthermore, unlike most fish health sessions that I have attended over the years, the audience wasn't just the same cast of characters from our small and intimate "fish vet club".

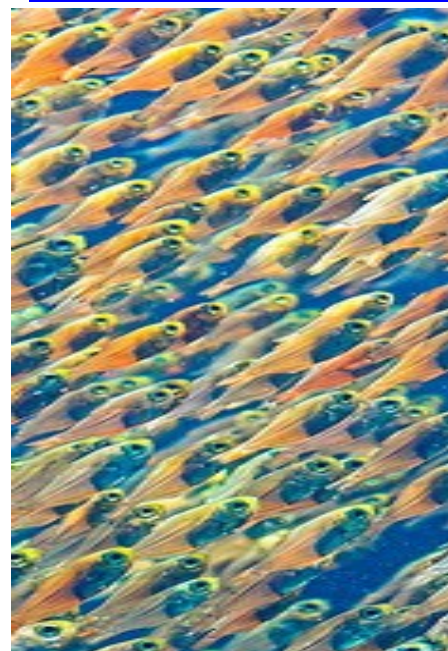
There was a predominance of new faces of traditional practitioners and students who had an interest in adding fish to their practices or pursuing the field. And this is what we need: fish as a normal part of veterinary medicine! The sessions showed the value of the veterinary clinical perspective. As someone once said with respect to being a veterinarian and what we can offer to the fish health world: "we are uniquely trained not just to observe, but to intervene".

So, summer is wrapping up. September always seems to be the start of a new year to me. WAVMA has a lot to do before the end of 2009. Stay tuned! Always interested in your views and thoughts, so don't ever hesitate to contact me: at hughm@aqualifesci.com or 425-821-6821.

Hugh Mitchell
WAVMA President

We welcome the following new members to WAVMA:

Maria Tzorzi (Greece)
Barry J. Baker (USA)
Bruce Maclean (United Kingdom)
Angelidis G. Panagiotis (Greece)
Rachel M. Tell (USA)
Veronique LePage (Canada)
Timothy Jones (USA)
Josiel Lopez (USA)
Amanda Neighbours (USA)
Sam Nicol (Canada)
Marlene N. Cole (USA)
Kirstin Liane Kamps (USA)
Brandon Anthony Boren (USA)
Jonathan M. White (USA)
Diane E. McClure (USA)



Secretary's Report

I was unable to attend the Annual General Meeting held in conjunction with the AVMA Convention in Seattle during July, so a report is given elsewhere in this *Aquatic Veterinary News*.

Prior to the AGM, the 2009 President-Elect Dr Otis Miller, resigned from the position due to taking up a new position with increased work commitments.

As part of the Executive Board, Otis provided excellent input on several matters earlier in the year and I and the other Board members wish him well in his new post. According to the Bylaws this meant that whoever won this year's election for the post of 2010 President-Elect would take over the 2009 President-Elect position vacated by Otis and become President in 2010.

The electable Board positions, which run from January 2010, were contested by several candidates this year with those successful being:

2010 President

Dr. Fotini Athanassopoulou DVM, PhD. MRCVS. Effie is Dean of the Veterinary Faculty of the University of Thessaly, Greece.

2010 President-Elect

Dr. Julius Tepper DVM.

Julie is a practitioner in the USA and has been a Director at Large of WAVMA since formation.

2010 Treasurer

Dr. Dušan Palić DVM, PhD is an Assistant Professor in the Department of Biomedical Sciences, The College of Veterinary Medicine, Iowa State University. Dušan has been Treasurer since the formation of WAVMA.

2010 Secretary

Dr. Chris Walster BVMS MVPH MRCVS is a practitioner in the UK. Chris has been Secretary since the formation of WAVMA.

2010 Director at Large

Dr. Peter Werkman DVM is a practitioner in The Netherlands. Peter has experience of several aquatic species, and is currently working full time in aquatic veterinary medicine.

2010 Director at Large

Dr. Paul Hardy-Smith BVSc (Hons.), Grad. Dip. (Aqua), GAICD, MRCVS is a practitioner in Australia. Paul was a Director at Large last year.

Congratulations to all and welcome to those who are newly elected! In my opinion the Executive Board is truly international and reflects the diversity to be found within WAVMA.

At the time of writing this, one of the longest strands on the Members listserv seems to be ongoing regarding spinal flexure in mature koi. It is an excellent example of the ease with which professional opinions can be sought and interesting cases discussed through the internet. This is a great advantage of WAVMA membership.

Contributions have been provided by a wide range of members from around the world and possibly a consensus diagnosis will be reached. One of the most interesting aspects is the diversity of opinion and the range of possible diagnoses.

I regularly "diagnose" over the phone, often asking clients to provide pictures of fish or their facilities via email. My presumption is that if a local practitioner is not available, I do not have the time to travel several hundred miles, or that the client wishes to spend a significant amount of money on me attending the fish (Once I was flown by a client to Copenhagen, Denmark to examine one fish which received one injection of antibiotic at a charge of £1410 (≈ US \$2000) including taxes.

I suppose "diagnosing" over the phone could be classed as a form of tele-medicine which is increasingly in vogue here in the UK as the govern-

ment tries to address the issue of the swine flu pandemic (if you have a cough and a temperature, contact the "swine flu helpline" and antivirals can be collected from a distribution point by your "flu friend").

The clear question is whether it is possible to diagnose over the phone based on symptoms provided by the client? When speaking to the client I always say, even when the client is adamant they know what is wrong or I believe I know, that it is a mugs game diagnosing through a telephone conversation and I will not dispense any prescription only medicines without at least a visit by a local vet. What should one do if the local vet refuses a visit? What would be the right ethical stance to take particularly if you believe you have a clear diagnosis?

The case of "the crooked koi" demonstrates to me that a history and clinical examination is often not sufficient to reach a diagnosis. Further investigation is required and/or exclusion by treatment is necessary to reach the correct diagnosis. This requires the hands on involvement of a suitably qualified professional and in my opinion this must be a veterinarian who is the only person likely to have received training in all the different areas involved (i.e. clinical exam, pathology, nutrition, husbandry etc.). There is no substitute for only treating "animals under your care".

Of course this does not address the many ethical issues which arise subsequent ranging from availability and cost of treatments, responsibility of owners and veterinarians and public health issues over treatments used. Anyone want to tackle any of these issues?

Chris Walster

WAVMA Secretary

chris.walster@onlinevets.co.uk

WAVMA COMMITTEE REPORTS

Meetings Committee

The 2009 WAVMA Annual General Meeting and Scientific Sessions By J. M. Tepper

As my wife Terry and I left Long Island, NY for Seattle, WA, I was happy the flight would get us there in the afternoon. I was really looking forward to seeing the Cascades and Mt. Rainier on our approach. I wasn't disappointed. A clear spectacular day with endless views of the mountains, trees and sea. What did surprise me though was the sallow, dry grass as the plane landed. It reminded me of the grasslands in Custer State Park, S. Dakota (You may remember the opening scene from the film "Dances with Wolves", filmed there). So much for raining all the time. In fact, it didn't rain once the whole time we were there.

Once on the bus from the airport, a quick call to Hugh Mitchell and arrangements to meet for dinner. It was great to see him again, with the added pleasure of the company of his charming wife, Karen. Terry and I enjoyed a relaxing evening with the Mitchells, at the Cheesecake Factory. Not a household name in the NY area, I had eaten at one in Boston, on my daughter's recommendation. Great food and service. I had been hoping for a cold glass of Alaskan Amber beer, which you can only get in Alaska and the Northwest U.S. Hugh talked me into trying a local microbrew called Mac and Jacks Amber. He wasn't wrong.



Saturday morning, Hugh and I got the booth up and running in the AVMA Convention venue. A chance to meet new people, vets and their families from all over the U.S. (and world..). Also, time to complete the presentations for our first scientific session.

That night, the "group" met at a local Asian buffet restaurant called Todai. Another first meeting for Terry and I was Megan Miller-Morgan, Tim's lovely wife. This is what our association is really about: camaraderie and professional support.



Mornings started early and were spent shuttling between the booth and Room 308, where the AVMA Aquatic Sessions were held. I did manage to take a few hours on Monday afternoon when Terry and I walked the 10 blocks or so down to the harbor, then over to the Pike Street Market. It seems my son had asked us to get him a Taputu, which I thought was some local produce or something. It turned out to be the jersey of one of the Seattle football players.

We bought some vegan pastries, which I told myself I would hate and which turned out to be quite tasty. I also told myself I would find the Market to be like so many others I had been to in tourist areas. Filled with all sorts of wonderful trinkets locally produced by artisans somewhere in China. Again, I was wrong. There were some really unusual handicrafts.



Terry got some earrings and I bought a signed koi pond print.

After arranging for food for the evening sessions, we bought some local produce to take back to the hotel. That's when I got to try the cherries. Of the two types, I was familiar with the Bing, very sweet, but had never had the subtle Rainier cherry. Loved it. I bought a few pounds of each which we all enjoyed after the meal at our AGM.

Continued on page 7.



WAVMA COMMITTEE REPORTS—CONTINUED

Sunday evening was the first of our WAVMA scientific sessions on Symptomatology. Monday evening was Diagnostics and Therapeutics. Great presentations with very lively roundtable discussions. Tuesday evening was the AGM, with President Hugh Mitchell leading a lively discussion on what the membership wanted to see our organization become. I videotaped all the sessions, so we will have material for the rest of the association to see.

WAVMA Booth

The Meetings Committee arranged for and operated the WAVMA Informational Booth at the trade fair of the AVMA Meeting in Seattle. Manned by J.M. Tepper (Pres. Elect 2010) and H. Mitchell (Pres. 2009) (below), we were able to explain the benefits of WAVMA membership to many veterinarians from all over the U.S.

Shuttling between aquatic lectures, presented by several of our members, we met many interested new people. I was surprised how many vets didn't even know we were regularly treating fish and aquatics. Between the scientific sessions, both from AVMA and WAVMA and our booth, we signed on many new members. A very successful effort

The Store Is Open!!!

At our Annual General Meeting this year, we debuted the first of several items emblazoned with the WAVMA logo. Thanks to a cooperative effort with the Meetings Committee and the Bradley Marketing Group, we produced self-stick vinyl car decals, which are being mailed to all members as a member benefit. They look great on either the middle of the back window or the lower corner of the front windshield (see below). An added benefit is to see "our colors" while you are driving.



Also seen at meetings and our booth was the white polo shirt with the logo embroidered on the front. (pictured above)

We still have these in stock for purchase by the membership. On display for future orders was a blue, weatherproof nylon polyester button-down shirt with the logo embroidered, as well as a hooded nylon jacket. Both really showed the logo off quite nicely. Additional decals and white polo shirts are available from J. M. Tepper at cypcarpio@aol.com.



Julius M. Tepper, DVM
Meetings Committee
cypcarpio@aol.com

Left:
Drs. Julius Tepper and Hugh Mitchell at the WAVMA booth.

ASSOCIATION'S ENDEAVORS

There has been some interesting discussions on the WAVMA listserv recently. Use the member's listserv for communication with your colleagues. Please write in a manner understandable by even those for whom English is a second (or third) language!

QUESTION:

I would like some input regarding pneumocystitis in a Ryukin goldfish. The fish has been in a tank for 1.5 years, but in the last few weeks was eating a little less, had a slightly enlarged abdomen, was sitting on bottom and not as active. Diet consisted of flakes (old), brine shrimp and occasional peas. The fish did not respond to Maracyn or Maracyn II antibiotics in water (per owner). Water quality was definitely an issue and has been addressed. Other tank mates are doing ok at this time.

My experience has taught me to treat the treatable, which includes parasite removal if indicated, an antibiotic sometimes, often an anti-inflammatory, and then of course, make sure water quality is excellent.

MEMBER'S LETTERS

Request for Information - All treatments for *Aeromonas salmonicida* infections, including those administered outside the USA.

I would like to obtain the following information on treatments for *Aeromonas salmonicida* infections. The information received will only be used to help establish standards for interpreting MIC test results.

- 1) Was *Aeromonas salmonicida* isolated? If yes, from what fish species?
- 2) With what drug and dose did you treat the fish/population?
- 3) What was the drug's minimum inhibitory concentration (MIC) against the *Aeromonas sal-*

I believe that the gas bladder, which must have expandable tissue, is compromised post damage (regardless of cause) and scar tissue does not have the same elasticity as normal undamaged tissue, so although the primary cause may be resolved, the function does not return. Ulceration and chronic inflammation/enteritis may also be possible.

I may try a round of famotidine, as a small dose of dexamethasone did make the fish clinically better, but I am hesitant to use that long term. I also fixed the water quality and used a round of Baytril. No parasites were found on examination.

The fish is lingering, but not getting substantially better.

Sandra Yosha, DVM

RESPONSES:

There is nothing new that I am aware of. Options seem to depend on the purse of the client. Certainly this is going off at a tangent but it might be worth collecting some information from other than ornamental fish vets:

monocida isolate?

- 4) Would you classify the result of treatment as effective, minimally effective, or ineffective? Choose one.

For more information please contact:

Ron A. Miller, PhD
Microbiologist
FDA - Center for Veterinary Medicine
Office of New Animal Drug Evaluation
7500 Standish Place
Rockville, MD 20855
240-276-8216
fax 240-276-8118
ram0709@hotmail.com

- What is the percentage of fish that do not respond to treatment?
- What is the percentage of cases where no obvious lesion is found?
- Why do the fish go off their food?
- What is the connection between pneumocystitis and decreased appetite?
- Is it possible that the connection is gastric ulceration?

Chris Walster BVMS MYPH MRCVS

I like to aspirate the gas bladder to see if it contains fluid when fish sink. If floating, aspirate air out of the gas bladder with a syringe in order to make the goldfish neutrally buoyant or slightly negatively buoyant. The goldfish tend to do better sinking than if they are constantly floating at the top. Often they return to normal after a short period, but sometimes they become excessively buoyant again.

Feed the fish sinking food, or feed them flake food that is released under the surface of the water so it doesn't float. That way they are not sucking air at the surface when feeding.

See article on page 12 by Peter Werkman, for other ideas.

Nick Saint-Erne, DVM

HELP WANTED

Communications Committee Members



To assist with Newsletter & Web Designs

Contact Nick Saint-Erne
Saint-Erne@Q.com

BOOK / LITERATURE REVIEWS

[Editorial comment: Invitation to review – the following publications are likely to have impacts on the practice of aquatic veterinary medicine. We invite members to review the information, and offer critiques and comments that may be published in a future newsletter edition. Please send contributions to Nick Saint-Erne, SaintErne@Q.com.]

Bovine Spongiform Encephalopathy and Aquaculture.

Friedland RP, Petersen RB & Rubenstein R. (2009).

***J. Alzheimer's Dis.*, 17 (2): 277-279.**

Abstract

Dietary consumption of fish is widely recommended because of the beneficial effects of omega-3 polyunsaturated fatty acids on the risks of cardiovascular and Alzheimer's diseases.

The American Heart Association currently recommends eating at least two servings of fish per week. We are concerned that consumption of farmed fish may provide a means of transmission of infectious prions from cows with bovine spongiform encephalopathy to humans, causing variant Creutzfeldt Jakob disease.

[reprints can be requested from the senior author - robert.friedland@louisville.edu.]

Rebuilding Global Fisheries.

Worm, et al (2009).

***Science*, 325: 578-585.**

Abstract

After a long history of overexploitation, increasing efforts to restore marine ecosystems and rebuild fisheries are under way. Here, we analyze current trends from a fisheries and conservation perspective.

In 5 of 10 well-studied ecosystems, the average exploitation rate has recently declined and is now at or below the rate predicted to achieve maximum sustainable yield for seven systems. Yet 63% of assessed fish stocks worldwide still require rebuilding, and even lower exploitation rates are needed to reverse the collapse of vulnerable species.

Combined fisheries and conservation objectives can be achieved by merging diverse management actions, including catch restrictions, gear modification, and closed areas, depending on local context. Impacts of international fleets and the lack of alternatives to fishing complicate prospects for rebuilding fisheries in many poorer regions, highlighting the need for a global perspective on rebuilding marine resources.

[reprints can be requested from the senior author - bworm@dal.ca. Other related publications of this author are available at <http://wormlab.biology.dal.ca/publications.php>.]

Plastic Debris: A New Pathway

(Excerpted from: The environmental toll of plastics, in Environmental Health News, July 2, by Jessica Knoblauch. Ocean Conserve News.

<http://www.oceanconserve.org/shared/reader/welcome.aspx?linkid=131729>

“One of the most ubiquitous and long-lasting recent changes to the surface of our planet is the accumulation and fragmentation of plastics,” wrote David Barnes, a lead author and researcher for the British Antarctic Survey. The report was published this month in a theme issue of *Philosophical Transactions of The Royal Society*, a scientific journal.

Plastics production and disposal contribute to an array of already well known environmental problems, but the report also identifies it as an invasive species pathway. Floating plastic waste, which can survive for thousands of years in water, serves as a floating transportation device that allows alien species to hitchhike to new parts of the world. Plastic items are commonly colonized by barnacles, tubeworms and algae, and along the shoreline of Adelaide Island, west of the Antarctic Peninsula, 10 species of invertebrates were found attached to plastic that was littering the ice.

More than 60 scientists contributed to the new report, which aims to present the first comprehensive review of the impact of plastics on the environment and offer possible solutions.

The authors said that if plastics are made and used responsibly, they can help solve some environmental problems. For example, one study found that packaging beverages in PET (a type of plastic) versus glass or metal reduces energy use by 52 percent and greenhouse gas emissions by 55 percent. And, solar water heaters containing plastics can provide up to two-thirds of a household's annual hot water demand, reducing energy consumption.



STUDENT'S ISSUES

Antimicrobial Use & Resistance in Zoonotic Bacteria in Aquaculture, Seafood & Ornamental/Pet Fish Online Survey -

University of Guelph,
Ontario Veterinary College

June 12, 2009.

Dear Colleague:

You have been identified as a professional with expertise in aquaculture, seafood or ornamental fish. Therefore, we are kindly asking for your input through participation in this questionnaire.

This online questionnaire is part of a collaborative research study led by Dr. Scott McEwen and his graduate student, Nataša Tuševljak from the University of Guelph, Canada, and researchers from University of Montreal and Public Health Agency of Canada (PHAC).

The study goal is to identify and evaluate existing information on the prevalence, risk factors and interventions for selected zoonotic bacteria, antimicrobial use and antimicrobial resistance in aquaculture (including seafood and ornamental fish). The results from this questionnaire, in tandem with a comprehensive literature review, will be utilised for prioritization of potential research and monitoring activities in Canada.

The key to the study success is the participation of experts (YOU!) providing input from a wide range of disciplines and professional backgrounds in aquaculture.

Please take the time to complete the online questionnaire to the best of your knowledge. It is presented in a manner that allows you to only answer questions pertaining to your field of expertise and you may skip any question should you prefer not to answer. It should only take between 10-20 minutes.

Be assured that your answers will be kept strictly confidential and a summary of the results will be sent to you once the study is completed. We will not use any verbatim quotes of your comments.

This is a rare opportunity to share your individual expertise with colleagues from around the world!

Thank you in advance for your participation! We highly appreciate it! If you have any questions, or you would like further information please do not hesitate to contact us.

If you are interested in participating in this survey, or you would like further information, please e-mail Natasa at the address provided below.

Nataša Tuševljak,
Graduate Student
University of Guelph
519-826-4185
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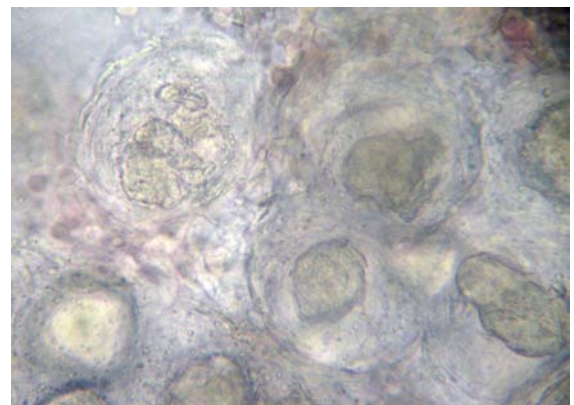
-or-

Scott McEwen, Professor
University of Guelph
519-824-4120 ext 54751
smcewen@uoguelph.ca

Letter from e-News - AquaVetMed

Below:
Photomicrograph of potentially zoonotic *Mycobacterium* bacterial granulomas from the abdomen of a guppy (*Poecilia reticulata*).

Photograph by Nick Saint-Erne



We invite student members to contribute issues or information to this column.

Important news for students wanting to join the WAVMA – all students currently enrolled in recognized veterinary academic programs (including post-graduate programs, internships and residencies) can join the WAVMA for 50% off the normal dues. This could be the best \$50 you ever spent.

Further information is available on the WAVMA.org website and on the 2009 Membership Application at the end of this Newsletter.

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**COLLEAGUE'S CONNECTION****Dr. Colin Johnston appointed as Biosecurity New Zealand Principal Adviser, Aquatic Animal Diseases**

Source: Biosecurity New Zealand,  
June 2009

([www.biosecurity.govt.nz](http://www.biosecurity.govt.nz))

Based within the Investigation and Diagnostic Centre (IDC) Animal Health Laboratory at Wallaceville, NZ, Dr Colin Johnston diagnoses diseases of fish, molluscs and crustaceans using pathology, bacteriology, virology and DNA technologies. He is also involved in developing new diagnostic methods for diseases of significance to New Zealand.

Dr Johnston has worked full-time with aquatic animals for more than 12 years, and is a member of the Australian College of Veterinary Science by examination in aquatic animal diseases. In 2006, he was made an examiner in aquatic animal diseases for the College. Dr Johnston joined the Ministry of Agriculture and Forestry—Biosecurity New Zealand (MAFBNZ) in 2006, where he worked in Policy and Risk before his move to the Wallaceville IDC.

He was previously the Veterinary Manager for a large UK aquaculture company, responsible for the health and welfare of 45 million fish across almost 60 farms. He then moved to Australia, where he became the General Manager of Aquatic Resources, with the Government of South Australia. He had carriage of the State aquatic animal health and aquaculture resource management programmes and oversight of the State Government-funded aquaculture management research programme.

Dr Johnston's appointment as Principal Adviser for aquatic animal diseases will enable him to provide advice across MAFBNZ and become more involved in coaching and mentoring other staff.

Dr Johnston represents New Zealand on the Quads aquatic diseases working group (a joint Australia, Canada, New Zealand and US group) and the Australian Sub-committee on Aquatic Animal Health (SCAAH). He sits on a World Organisation for Animal Health (OIE) working group on the biosecurity safety of commodities from aquatic animals, and has been an invited speaker on fish welfare by both the Royal Society of New Zealand and the RSPCA Australia.

Contact **Dr Colin Johnson** at:

MAF Biosecurity New Zealand  
PO Box 2526  
Wellington 6140 NEW ZEALAND  
Phone: 0800 00 83 33  
Fax: +64 4 894 0720



**Dr. Colin Johnston**

**NOTE: WAVMA IS AWARE THAT FISH OWNERS (POTENTIAL CLIENTS) AND GOVERNMENT AGENCIES THROUGHOUT THE WORLD ARE UTILIZING THESE ONLINE RESOURCES TO LOCATE AQUATIC VETERINARIANS & DIAGNOSTIC LABS !!!**



**If you are active or interested in any areas of aquatic veterinary medicine register in the free online directory.**

**Register AT NO COST TODAY at [www.AquaVetMed.info](http://www.AquaVetMed.info)**

## CLINICAL REPORTS

### FISH SURGERY:

#### How to ballast a fish

Over the last few years, I have frequently been asked to examine fish that were swimming sideways or upside down, or floating at the surface of the water; while there have been other cases with fish that could not swim up to the water surface. Several of the fish were swimming abnormally for six months before presenting them for examination. A few patients (two were piranhas) were lying on the bottom. After a few attempts to swim to the surface they would get tired and sink back to the bottom.

Most of these patients were pet goldfish, especially the varieties with long fins and a short rounded body (e.g., lionheads, bubble-eyes, telescope eyes, oranda, veil tails) and sometimes koi. The problem is usually located in the swimbladder. Goldfish and koi have a small pneumatic duct between the esophagus and the swimbladder. The swimbladder has two lobes of which the cranial sac is more rigid and the caudal sac more elastic and therefore can expand more easily. A narrow isthmus connects the cranial and caudal sacs. The volume of the swimbladder can be 5-10% of the body volume.

Buoyancy problems due to overfilling of the swim bladder with air may be caused by inflammation, torsion, neoplasia, obstipation, poor water quality (causing gasping for oxygen at the water surface), high level of nitrate, poor nutrition, a problem of genetic origin (abnormal body forms) or idiopathic. It costs the fish much energy struggling to hold a normal swimming position. Once they stop trying to swim, they float to the surface, often in an inverted position.

Filling of the swimbladder with fluid (due to inflammation), or neoplasia producing a compression on the swim bladder, may cause a fish to sink. Floating can cause skin damage through the exposure to air and sinking fish may get skin wounds by



Veiltail goldfish swimming upside down



Stargazer floating upside down  
Notice the portion above the waterline



Client's method of stabilizing goldfish



Client's method of stabilizing goldfish

scraping against the bottom gravel while trying to swim. A radiograph can give more information about the size and form of the swimbladder of the fish, if there is gas in the intestines, or if there is an abnormal mass in the abdomen (coelem).

#### Therapy:

Trying to get the air out of the swimbladder with a syringe and a needle may help, but sometimes only for a short period of time, because the problem may recur within a few days. I advise to put the disabled fish in a separate tank with an air stone and 3-5 grams of sea-salt (iodine-free salt) per litre water for one to two weeks, starting with the low dosage, and adding an additional gram each day to the 5 g/L level.

It is also recommended to give sinking food pellets in combination with freeze-dried mosquito larvae, brine shrimp or daphnia once a day. One thought is that the fish gulping air while eating food floating at the surface may add air to the swim bladder through the pneumatic duct, or just increase gas in the intestines, resulting in abnormal buoyancy. Other authors see improvement after withholding the food for a few days, or raising the water temperature five degrees or feeding cooked green peas.

Some owners came up with ingenious methods of keeping their fish upright. One fish had a bandage around its body and in the bandage was an air-filled plastic film roll box to provide upright stability. Another owner put a small band around the base of the tail and clipped- two lead pellets (used on fishing lines) at the ends. More than half of these patients recovered with the diet and salt baths. Sometimes it was necessary to repeat the salt treatment. When no improvement is seen with this treatment after three weeks, the owner has the choice to leave the condition as it is, to have the fish euthanized in case of severe skin damage, or have the fish undergo surgery to correct the buoyancy problem.

**CLINICAL REPORTS—CONTINUED FROM PAGE 12****Surgery procedure:**

Under general anaesthesia, a small incision is made ventrally in the abdomen. Through the opening three to six sterilised quartz granules are put inside the body cavity. When sufficient weight has been added, the wound is closed with sutures and the fish can swim more or less normal.

After agreeing to the surgery the owner was asked to bring the fish in a container or double plastic bag filled with 1/3 aquarium water and 2/3 air or oxygen. The same amount of aquarium water was asked to be brought in a separate container. In this water the fish can recover after the operation. In very hot or cold weather an insulated box or newspapers wrapped around the plastic bags may help maintaining the water temperature. When the owner with the fish arrives, the fish is put into a plastic container with its transport water. The fish is observed and some photographs are taken.

In the meantime, the instruments and equipment for the operation are prepared:

Two containers or plastic tanks, the first one large enough to anaesthetise the fish in. Marks on the outside indicate the contents in litres. The second container of similar size is used for the recovery.

Airpump with bubble stone  
Benzocaine solution, needle and 5 or 10 ml syringe

Two wet towels

Wedge shaped piece of foam rubber (see picture)

Gloves

Surgical instruments: scalpel, two small hemostats, two pairs of tweezers, needle holder, absorbable suture material 4-0 or 5-0, one large and one small pair of scissors

About ten or more pieces of colourless aquarium quartz gravel stones

Camera



Foam wedges for supporting fish



Sterilized uncolored quartz pebbles



Patient prior to surgery



General anaesthesia is performed with Benzocaine. Dissolve 50 mg Benzocaine in 1 litre of ethanol (= 50 mg/litre) and put 0.5-1 ml of this solution per litre in the transportation water. It takes a few minutes before the fish becomes disorientated. When no reaction is felt when squeezing the base of the tail with thumb and forefinger, the fish can be lifted out of the water.

Put the fish upside down on the wet towel that is draped over the foam rubber wedge. The wedge will keep the fish from rolling over sideways. A second wet towel is used to cover the head and tail. A pointed scalpel knife is used to make a small midventral incision 0.5-1 cm cranial to the vent. Lengthen the incision with a pair of small scissors. The skin of a fish is much tougher to penetrate than you would expect. Hardly any bleeding is seen.

Have some (about ten) sterilized small uncolored quartz aquarium gravel stones ready. Use a small hemostat to hold the wound open and put with a pair of tweezers three to four pieces of quartz gravel inside the body cavity. You may take the fish to the clean water tank to see if sufficient gravel has been placed inside. If not add one or two more pieces. When the fish is no longer floating, suture the wound with a few single interrupted sutures. Do not overload the fish.

Total surgery time from anaesthesia to a full recovery may last fifteen to twenty minutes. A fish can be kept out of the water for two to three minutes provided the skin is kept wet with towels. When more surgery time is needed the fish can be put back in the water with Benzocaine. After the operation the fish is transferred to the second container with its own aquarium water. An airpump with airstone is started and by moving the fish by hand over the air bubbles recovery will occur in two to three minutes. When the fish is swimming, it may go home.

**CLINICAL REPORTS—CONTINUED FROM PAGE 13**

The owner is advised to keep the fish for one week in a separate tank with 3 grams per litre of sea-salt added plus an air stone, but without plants. The sutures are usually dissolved in seven to ten days. After one or two days, the fish eats normally and has good stools. So far I have not seen or heard of any problems with inflammation of the wound or internal problems in the five fishes on which I have operated. I have not used any antibiotic, nor have I given an analgesic.

Most of these fishes have not been swimming abnormally for a long time, it may therefore take a week or longer to find a new balance. The fishes I did surgery on are doing well, however the first fish continued swimming upside down and after fourteen days I had to put two more pieces of gravel in them.

Questions can be asked:

Is it ethical to do such an operation?

Are there better options? Should I have used an analgesic injection? Are antibiotics needed?

Maybe talking to breeders to stop breeding fishes that are prone to get this problem?

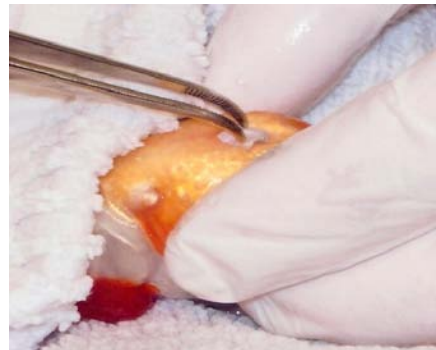
All remarks and suggestions are welcome.



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Leusden, Netherlands  
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[www.dierenartswerkman.nl](http://www.dierenartswerkman.nl)



**Enlarging the incision**



**Putting gravel pieces inside the abdomen**



**Suturing incision**



**Post-surgery**

Useful references:

Use of pneumocystoplasty for overinflation of the swimbladder in a goldfish. Britt, 2002, JAVMA, 221 pp 690-693.

Pneumocystectomy in a Midas Cichlid. Greg Lewbart a.o. 1995, JAVMA, volume 207, no 3, pp 319-321.

Building a fish anesthesia delivery system. Greg Lewbart a.o. 1999, Exotic DVM, vol 1.2, pp 25-28.

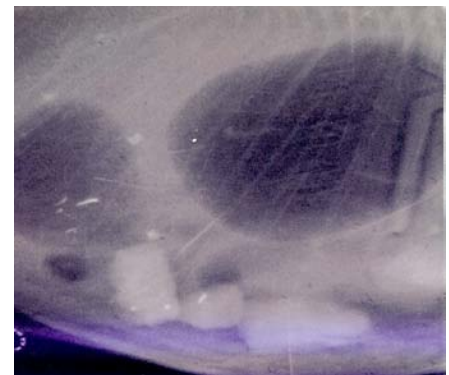
Green peas for buoyancy disorders. Greg Lewbart, 2000, Exotic DVM, vol 2, pp 7.

Fancy Goldfish, A complete guide to care and collecting. Erik L. Johnson, a.o. 2004, pp 175.

Swimbladder disease in goldfish. J.C. Reyes, 2005 Exotic DVM, vol 7.5, pp 3-6.

Taking the plunge, treating petfish. William Wildgoose 2001, In Practice, pp 220-227.

A clinician's approach to internal disorders of fish, buoyancy disorders. William Wildgoose 2006, Fish Veterinary Journal, no 9.



**Radiograph of the abdomen with stones (white) visible ventral to the two chambers of the gas bladder (dark areas).**

All the photographs in this article are by the author.

## EMERGING ISSUES

### **Antibiotic-Resistant Organisms Cultured from Atlantic Bottlenose Dolphins (*Tursiops truncatus*) Inhabiting Estuarine Waters of Charleston, SC and Indian River Lagoon, FL.**

**Schaefer, AM, JD Goldstein, JS Reif, PA Fair & GD Bossart (2009).**

*EcoHealth*, Published online May 2009.

#### Abstract:

Bottlenose dolphins (*Tursiops truncatus*) from estuarine waters of the Indian River Lagoon, FL (IRL) and Charleston, SC (CHS) were cultured to screen for microorganism colonization and to assess antibiotic sensitivity. Swabs (n = 909) were collected from the blowhole, gastric fluid, and feces of 171 individual dolphins

The most frequently cultured organisms were *Plesiomonas shigelloides* (n = 161), *Aeromonas hydrophila* (n = 144), *Escherichia coli* (n = 85), and *Pseudomonas fluorescens* (n = 82). In descending frequency, organisms demonstrated resistance to erythromycin, ampicillin, and cephalothin.

Human and animal pathogens resistant to antibiotics used in human and veterinary medicine were cultured. *Escherichia coli* (E. coli) more often was resistant in IRL dolphins. Three cases of methicillin-resistant *Staphylococcus aureus* (MRSA) were found at CHS.

Emergence of antibiotic resistance is not confined to humans. Bottlenose dolphins may serve as sentinels for transfer of resistance from humans and animals or indicate that antibiotics are reaching the marine environment and causing resistance to emerge through selective pressure and genetic adaptation.

### **Zambezi hit by killer fish disease—Risks spreading to other parts of Africa**

FAO: 21 July 2009, Rome

A killer disease is decimating fish stocks in the Zambezi River Valley, threatening the food security and livelihoods of rural populations in an area shared by seven countries, FAO warned today.

An alert issued by FAO's Global Information and Early Warning System (GIEWS) said the disease, known as Epizootic Ulcerative Syndrome, or EUS, is caused by the fungus *Aphanomyces invadans*, which forms ugly lesions on fish and has a high rate of mortality. It is one of the most serious aquatic diseases affecting finfish.

"If not properly contained there is the risk of the disease spreading to other countries surrounding the Zambezi River as well as river systems in the region," said Rohana Subasinghe, Senior Fishery Resources Officer. The 1,390,000 km<sup>2</sup> Zambezi River Basin is home to some 32 million people, of whom 80 percent are dependent on agriculture or fishing and fish farming.

Indications are that EUS, which was first confirmed in Africa in 2007, is spreading both upstream and downstream of the Zambezi and risks taking hold in other parts of Africa. The GIEWS alert serves notice on the international donor community that a food security crisis is developing and that assistance and funding will likely be required.

The most affected country is Zambia, where two thirds of the Zambezi River Basin lies. Over 2000 villages and some 700,000 people are at risk of food insecurity because fish is not only a source of revenue in many rural districts but is also the cheapest available source of protein.

Fish infected with EUS do not normally pose health hazards to humans, although the deep ulcerations and tissue decay characteristic of the disease could harbour secondary, more threatening pathogens. It is therefore recommended not to eat EUS-contaminated fish unless it is thoroughly cooked.

EUS-affected fish are unmarketable, causing severe economic loss to fishers and fish farmers. Some 50 species of finfish are susceptible to the disease, with outbreaks often affecting younger fish in particular so that irreversible damage to fish populations and severe loss of biodiversity often occurs.

EUS first appeared in Japan in the early 1970s then spread to Australia and much of Asia, while the United States was hit in 1984. It is now present in at least 24 countries in the world.

FAO has since 2007 been helping build capacities for coping with the disease in the seven Zambezi River Basin countries - Angola, Botswana, Malawi, Mozambique, Namibia, Zambia and Zimbabwe. This includes basic EUS diagnosis, targeted EUS surveillance and basic aquatic animal health management.

In response to urgent requests from a number of countries FAO, in close cooperation with the Paris-based World Organisation for Animal Health (OIE), is helping develop and implement an aquatic biosecurity framework for Southern Africa and build capacity for the management of Zambezi River resources.

Control of EUS in natural waters such as rivers is impossible but is relatively simpler in fish farming operations where a number of simple biosecurity measures can minimize or prevent its spread. They include preventing possible carriers or vectors getting into water bodies or fish ponds, removing dead fish and improving water quality.

Source: <http://www.fao.org/news/story/en/item/28978/icode>

## EMERGING ISSUES

### Asian Carp Decreasing in US?

Asian carp dramatically expanded in the Missouri River after the 1993 floods. Duane Chapman, a research fisheries biologist at the USGS Columbia Environmental Research Center, said this year's silver carp (*Hypophthalmichthys molitrix*) population is starving, since the Missouri River is unable to sustain such a large number, and they may face a die-off (i.e., a drop in numbers) sometime this year.

Asian bighead carp have been decreasing in number since 2005. Chapman said the starvation of Asian carp has appeared in the Center's research and observations; the silver carp are much thinner this year, and lab studies indicate that spawning may be affected because the fish gametes can't produce good eggs. Chapman predicts the Asian carp will have trouble reproducing in the river, hopefully leading to fewer baby silver carp next year and a smaller population.

Chapman hopes the carp decline enough to help preserve the native species that they compete with for food, which research has shown is already scarce. Even though researchers predict that a die-off is likely, it may not be obvious, as the Missouri River water flows rapidly, and many dead fish may just float on down the river. In the end, Asian carp can't remain in this poor condition for much longer, and any decrease in numbers should be good for the river.

(Excerpt from a *Missourian* article by Amber Wade, June 7. Asian Carp facing starvation, reproductive problems.

[<http://www.columbiamissourian.com/stories/2009/06/07/asian-carp-facing-starvation-and-reproductive-problems/>]

### Bighead Carp Update

United States Senator Carl Levin is moving to put the invasive Asian bighead carp (*Hypophthalmichthys nobilis*) on a list of species prohibited from importation into the U.S. *The Asian Carp Prevention and Control Act* (S 1421), introduced in July, 2009 would make it unlawful to import, export, transport, buy or sell the fish. The USFWS has already listed other species of Asian carp as injurious under the Lacey Act.

This is too late, however, for some waters: it has already spread from fish farms in Louisiana in the 1970s, up the Mississippi River, and is only being kept out of the Great Lakes by an electric dispersal barrier.

Bighead carp, known for their voracious appetite, can grow to 6 feet long, and weigh as much as 110 pounds. By adding the species to the list of prohibited wildlife under the Lacey Act, Levin and his cosponsors hope to prevent any intentional introduction of the bighead carp to yet-untouched U.S. waters.

[<http://www.freep.com/article/20090709/NEWS07/90709062/Sen.+Levin+to+prohibit+invasive+carp+from+U.S.+import>]

Below:

***Pomacea bridgesi* (spike-topped apple snail or mystery snail) is available in many color varieties**



### Apple Snail Website And Blog

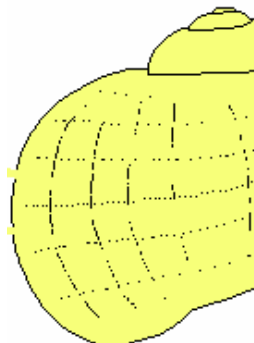
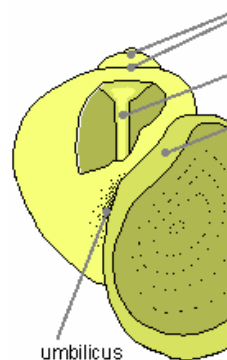
The Snail Busters Blog was created to facilitate communication between aquatic resource managers who are fighting the spread of invasive South American apple snails, specifically *Pomacea insularum* and *P. canaliculata*.

To view the website, go to [<http://snailbusters.wordpress.com/>]

See link below for identification of apple snail species:

[<http://www.floridaaquaculture.com/publications/Apple%20Snails.pdf>]

**Shell morphology of *Pomacea* snails, from Florida Aquaculture Publication on Apple Snails (DACS-P-00085) from the above website.**





## LEGISLATIVE & REGULATORY ISSUES

### US FDA Reminds Aquaculture Producers of the Correct Use of Florfenicol

July 16, 2009

Source: <http://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/ucm172356.htm>.

The Food and Drug Administration (FDA) is reminding aquaculture producers about the appropriate use of the drug, florfenicol, an antibiotic for use in fish. FDA's Center for Veterinary Medicine (CVM) has received reports indicating that florfenicol is being administered to fish in forms not currently approved by FDA. Using a form of florfenicol other than the product form approved for use in or on feed is illegal and can result in illegal drug residues in fish, be unsafe for the fish, or be ineffective in treating the specific diseases in catfish and salmonids for which it is approved.

Florfenicol is approved for use in fish only as a Veterinary Feed Directive (VFD) drug. VFD drugs are drugs used in or on animal feed under the

supervision of a licensed veterinarian. There are two VFD animal drug florfenicol products approved/conditionally approved by FDA for use in catfish and salmonid feed: Aquaflor® and Aquaflor®-CA1.

CVM has received reports that some aquaculture producers are using florfenicol in an unapproved manner. The reports indicate that aquaculture producers are adding florfenicol to pelleted fish feed, commonly called, "fish pills." The Animal Medicinal Drug Use Clarification Act (AMDUCA) does not permit the extra label use of a drug in or on feed. Aquaculture producers are producing food for humans and need to comply with FDA regulations pertaining to human food and animal feed.

CVM is reminding veterinarians and aquaculture producers to always read and carefully follow the drug label directions.

Any questions about the use of the VFD for florfenicol in aquaculture may be directed to Fran Pell, CVM, Division of Compliance, 240-276-9211, [frances.pell@fda.hhs.gov](mailto:frances.pell@fda.hhs.gov).

### International Conference on Aquatic Invasive Species Presentations Available

To access presentations and abstracts from the recent International Conference on Aquatic Invasive Species (ICAIS), held April 19-23, 2009 in Montreal, PowerPoint files in PDF format are posted on the ICAIS website.

The final abstracts book is also available online in PDF format. Access the files at [<http://www.icaiss.org/html/previous16th.html>] and check the ICAIS website in the coming months for information about the next conference.



### US FDA Fish Drug Analysis - Phish-Pharm 2008

Phish-Pharm was first released in 2005, accompanying an article in the American Association of Pharmaceutical Scientists (AAPS) Journal: Fish Drug Analysis-Phish-Pharm - A Searchable Database of Pharmacokinetics Data in Fish, by R. Reimschuessel, L. Stewart, E. Squibb, K. Hirokawa, T. Brady, D. Brooks, B. Shaikh, C. Hodsdon, AAPS Journal, 2005; 07(02): E288-E327, article 30, <http://www.aapsj.org/view.asp?art=aapsj070230>.

The searchable fish pharmacokinetics database has been updated and posted on-line at: <http://www.fda.gov/AnimalVeterinary/ScienceResearch/ToolsResources/Phish-Pharm/default.htm>.

The database can be freely downloaded in the form of a Microsoft Office Access file in which multiple parameters can be easily searched, a standalone Access Application or an Excel spreadsheet. In addition a 508 compliant searchable version for key words is also now available <http://www.accessdata.fda.gov/scripts/fcn/fcnNavigation.cfm?rpt=phishPharmListing>.

This information in the database was gathered from over 400 articles, including data from 124 species (95 genera). Data fields include genus, species, water temperatures, the average animal weight, sample types analyzed, drug (or chemical) name,

dosage, route of administration, metabolites identified, method of analysis, protein binding, clearance, volume of distribution in a central compartment (Vc) or volume of distribution at steady-state (Vd), and drug half-lives (t<sub>1/2</sub>). Additional fields list the citation, authors, title, and Internet links. The document will be periodically updated, and users are invited to submit additional data.

Additional updates will be announced as they are available. This database is a valuable resource to investigators of drug metabolism in aquatic species as well as government and private organizations involved in the drug approval process for aquatic species.

## AQUATIC CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT

### 7th International Conference on Behaviour, Physiology and Genetics of Wildlife

Leibniz Institute for Zoo and Wildlife Research (IZW) and the European Association of Zoos and Aquaria (EAZA) Berlin, Germany

21st - 24th September 2009

For those who have not registered yet, please do so:  
<http://www.bayceer.uni-bayreuth.de/izw7/>

#### The main topics of the conference are:

##### - *Life History & Maternal Effects*

(Pat Monaghan, University of Glasgow, UK)

##### - *Stress & Disturbance*

(Marco Apollonio, Università Sassari, Sardinien, Italy)

##### - *Reproduction Biology*

(David Wildt, Smithsonian National Zoological Park, USA)

##### - *Evolutionary Genomics in Conservation*

(Pierre Taberlet, Université Joseph Fourier, Grenoble, France)

##### - *Conservation Biology*

(Eric Dinerstein, Director of science WWF-USA, Washington, USA)

#### The Conference offers several workshops:

##### 1. *Evolutionary Genomics in Conservation*

(Pierre Taberlet, Université Joseph Fourier, Grenoble, France & Simone Sommer, IZW, Berlin, Germany)

##### 2. *Communication in Mammals and Birds*

(Francesco Bonnadonna, Centre d'Ecologie Fonctionnelle et Evolutive, Montpellier, France & Martin Dehnhard, IZW, Berlin, Germany)

##### 3. *Welfare and Conservation*

(Eric Dinerstein, senior scientist WWF-USA, Washington, USA & Marion East, IZW, Berlin, Germany)

##### 4. *Stable Isotopes, Nutrition and Energetics*

(Carlos Martinez del Rio, University of Wyoming, USA; Sylvia Ortmann, IZW, Berlin, Germany & Christian Voigt, IZW, Berlin, Germany)

##### 5. *Behavioural Rhythms*

(Serge Daan, University of Groningen, the Netherlands & Anne Berger, IZW, Berlin, Germany)

##### 6. *Research by, in, with and for zoos, aquaria and other ex situ-institutions*

(Kirstin Leus, EAZA & IUCN/SSC:CBSG Europe, Antwerpen, Belgium)

A practical training workshop on non-invasive monitoring of hormones will also take place at the IZW/Berlin during the week preceding the conference; Martin Dehnhard, IZW.

The conference dinner will take place at a beautiful setting in the city center overlooking the river "Spree".

You will find more information about the conference on our homepage at: <http://www.izw-berlin.de/de/flink/7thIZW-Conference.html>

Please do not hesitate to contact us if you require any further information at: [symposium@izw-berlin.de](mailto:symposium@izw-berlin.de).

Contact:

Dr. Petra Kretzschmar

Organisation Committee  
 Leibniz-Institute for Zoo and Wildlife Research (IZW) in the Forschungsverbund Berlin e.V.

Alfred-Kowalke-Straße 17  
 10315 Berlin, GERMANY

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Tel. + 49 - 30 - 51 68 - 108  
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## Harmonisation of the Care & Use of Fish in Research

International consensus meeting,  
Oslo, Norway

**22 – 24 September 2009**

*Why are we arranging this meeting?*

Fish comprise one of the largest but least understood groups of animals used in research in Europe. In Norway alone, over 5 million animals were used in animal research in 2007, and 90% of these were fish. There is considerable political interest in many countries to reduce the numbers of animals used.

What is less well known is the work currently being undertaken in Brussels and Strasbourg to revise the EU directive and to follow up the revision of Appendix A of the Council of Europe convention on the protection of

animals used in research. These documents have great consequences for all those conducting research on live animals, including fish.

*The 3 R's: Replace, Reduce, Refine*

International focus on ethical and scientific evaluation of animal research, summarised in "The Three R's" has led many countries, including Norway, to revise their legislation. It is vital that researchers participate while these decisions are being made.

This meeting aims to review what we consider to be "best practice" within research on fish species. It follows up an international consensus meeting held in Oslo in May 2005. What have we achieved during the last 4 years, and what still remains to be done?

*Can we reach consensus?*

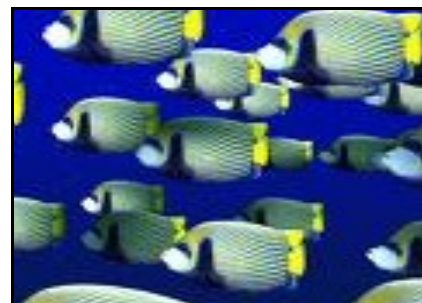
The next World Congress on the three R's will be arranged in Rome in

August 2009. We hope to be able to report the conclusions from that meeting, including a consensus statement from the participants, at the Congress.

*We welcome suggestions for topics from the participants!*

This meeting is arranged by Norecopa, Norway's consensus-platform for the replacement, reduction and refinement of animal experimentation.

Please see <http://www.norecopa.no> for more details.



## 10<sup>TH</sup> WORLD CONGRESS OF VETERINARY ANAESTHESIA

31<sup>ST</sup> AUGUST TO 4<sup>TH</sup> SEPTEMBER 2009, GLASGOW, UK

FOR FURTHER DETAILS VISIT [WCVA2009.COM](http://WCVA2009.COM)



### The 10th World Congress of Veterinary Anaesthesia

Glasgow, Scotland

**31st August—4th September, 2009.**

Bute Hall provides an impressive backdrop for a panel of world class speakers, including Dr Duncan Young, Dr Andrew Lumb and Dr Sue Hill.

Convening every three years, this event explores the very latest research and developments in veterinary anaesthesia, providing an unparalleled opportunity for the exchange of ideas and discussion at an international level.

The full scientific program has yet to be finalised, however topics under discussion will include pharmacogenetics, pulmonary function, ethics and physiology in avian and **piscine anaesthesia**.

Controversies will be led by Dr Jo Murrell & Dr Bruno Pypendop on "MAC – an irrelevant outdated and misused construct or the basis of safe surgical anaesthesia?"

"Acepromazine, nitrous oxide and halothane – 50 years past their sell by date or the bedrock of safe anaesthesia?" – (Dr Martina Mosing & Dr Emma Love).

And... "Ethics: medical and veterinary viewpoints" (Dr Peter Sandoe & Dr Dominic Wilkinson).

Sponsorship opportunities for this prestigious event are still available in a number of options and can be tailored to suit individual requirements, either within the commercial exhibition or as a major sponsor of the congress.

For further information on either registration or sponsorship please contact:

Mrs Louise Holder  
R&W Communications  
Suites 3&4, 8 Kings Court, Willie  
Snaith Road,

Newmarket, Suffolk. CB8 7SG  
Tel. 01638 667600

Mobile 07813 218396  
Email:

[louise.holder@rw-communications.co.uk](mailto:louise.holder@rw-communications.co.uk)

### Sixth International Symposium on Aquatic Animal Health (ISAAH-6)

**Sept. 5 - 9, 2010,**  
in Tampa, Florida, USA

You are warmly invited to participate in the sixth International Symposium on Aquatic Animal Health (ISAAH-6), September 5 – 9 2010, in Tampa, Florida, USA. The symposium will address present practices and new initiatives in aquatic animal health focusing on infectious diseases, wild stock, aquaculture development, planning and emergency response systems, interaction of diseases between wild and farmed stocks, and outcomes of physical, chemical and biological environmental stress.

The previous international symposia on aquatic animal health have attracted strong international support, with up to 425 participants from 35 countries!

The symposium will provide an inclusive forum for presentation of research, management, and policy issues related to the health of aquatic animals, whether wild, farmed or held on exhibit. The broadest range of animals is considered, from invertebrates to fish, amphibians, chelonians and marine mammals. The four days of scientific sessions will include invited plenary lectures and special topic

sessions, parallel sessions of oral presentations, a dedicated half-day poster session, a student workshop, a diagnostic challenges session, and an exhibits area for books and informational displays from participating scientific organizations.

The symposium venue will be the beautiful Tampa Marriott Waterside Hotel, which features elegant accommodations, a choice of restaurants, an outdoor pool, and waterfront terraces. Base room rates have been specially-negotiated at \$129 USD, single or double. Tampa is an eclectic city, with many nearby attractions, and is served by an excellent international airport. The symposium will be hosted by the American Fisheries Society - Fish Health Section, and will be supported by the Emerging Pathogens Institute, University of Florida. The symposium organizers are Drs. Andrew Kane and Sarah Poynton.

More information is available on symposium website (<http://aquaticpath.epi.ufl.edu/isaah6>).



### Annual Aquatic Medicine Seminar

**February, 19, 20 and 21, 2010**  
Las Vegas, Nevada

Shark Reef Aquarium will be hosting its Annual Aquatic Medicine Seminar on February, 19, 20 and 21, 2010 at Mandalay Bay Resort & Casino in Las Vegas, Nevada. The program consists of two full days of lecture on a wide-range of aquatic animal health and medicine topics with an emphasis on elasmobranchs.

In addition there is a wet lab on day three that provides a hands-on learning experience. Attendance for the wet lab is limited to 30 participants based on early registration.

For additional information please contact **Jack Jewell** at (702) 632-4560 or e-mail [mijewell@mandalaybay.com](mailto:mijewell@mandalaybay.com)

For additional information you are also welcome to visit our web site at [Sharkreef.com](http://Sharkreef.com)



### 14TH INTERNATIONAL CONFERENCE ON DISEASES OF FISH AND SHELLFISH

Prague, Czech Republic  
**14th-18th September 2009**

"The 14th International conference on diseases of fish and shellfish" (organised by the European Association of Fish Pathologists - EAFP) will be held at the Clarion Congress Hotel in Prague, Czech Republic. Scientific and technical sessions consisting of poster presentations, invited talks, keynotes, oral presentations, workshops and

an EAFP General Assembly will take place during the Conference. We will welcome suggestions for potential topics for scientific sessions and workshops. Planned social events include a Welcome cocktail, Civic reception and the traditional Conference Banquet.

More information about the conference will be available on the EAFP website (<http://eafp.org/>) as well as in the 2nd announcement.

Feel free to contact the Meetings Secretary for questions or additional information:

**Stephen Feist,**  
EAFP Meetings Secretary  
Centre for Environment, Fisheries and Aquatic Science (Cefas)  
Weymouth Laboratory,  
Barrack Road The Nothe,  
Weymouth, Dorset DT4 8UB, UK  
Tel. +1305 206600,  
Fax. +1305 206601.  
E-mail. [stephen.feist@cefasc.co.uk](mailto:stephen.feist@cefasc.co.uk)

## AQUATIC VETERINARY JOB OPPORTUNITIES

### Walt Disney World Animal Programs Veterinarian

Join a dedicated, progressive group of professionals working to provide excellent health care for the Animal Programs collection at Walt Disney World in Florida.

Disney's Department of Animal Health oversees the veterinary and nutritional programs at all of the Animal Programs facilities, including Disney's Animal Kingdom, Animal Kingdom Lodge, the Seas with Nemo and Friends, the Tri-Circle D Ranch, and several other satellite facilities. Emphasis is placed on preventive health, nutrition, pathology, quarantine and disease surveillance. As Clinical Veterinarian, the successful candidate will be responsible for addressing health issues concerning a large collection of animals including birds, mammals, fish, herpetofauna and invertebrates.

Disney's Department of Animal Health maintains a large hospital team of 9 veterinarians and 20 support staff, as well as an Animal Nutrition Center with a nutritionist and 20 support staff. The Clinical Veterinarian will partner with these teams, as well as with animal husbandry managers, Life Support, and the Education and Research Departments. Opportunities for in-situ conservation work, research and teaching/training also exist.

#### Required qualifications:

- DVM or equivalent degree
- Seven years of zoological medicine experience
- Florida licensure or qualifications to take the Florida State Board examination
- USDA-accreditation in the state of Florida, or eligibility to become USDA-accredited in the state of Florida
- Commitment to excellence and a passion for conservation

- Willingness to perform veterinary procedures in a public viewing environment
- Demonstrated computer skills with mainstream IBM compatible programs
- Demonstrated strong organizational skills
- Strong written and verbal communication skills
- Proven ability to participate as part of a team
- Demonstrated ability to follow directions well and handle detail-oriented information

#### Desired qualifications:

ACZM board certification or eligibility  
Breadth of veterinary experience with different animal taxa

Experience at an AZA-accredited facility

The successful candidate will receive competitive compensation and a comprehensive benefits package, including medical, dental, vision, short-term and long-term disability, life insurance, 401(k) plan, salaried retirement plan, holidays, vacation, educational reimbursement, stock purchase plan, merchandise discounts and complimentary admission media.

#### Please send resume to:

Disney Worldwide Services, Inc.  
Professional Recruitment -  
Animal Programs  
P.O. Box 10,000  
Lake Buena Vista, FL 32830  
[wdw.prof.recruiter@disney.com](mailto:wdw.prof.recruiter@disney.com)

#### Fun Facts:

At Disney's Animal Kingdom theme park, to keep 1,000 animals happy takes about 3 tons of food a day... that's a 4.5 year supply for the average person.

### Chair - Epidemiology / Aquatic Epidemiology

The University of Prince Edward Island's (UPEI) Atlantic Veterinary College (AVC) is looking for an internationally recognized epidemiologist/aquatic epidemiologist to nominate as the Canada Excellence Research Chair (CERC) in Aquatic Epidemiology. The CERC program is highly prestigious, and is funded by the government of Canada at 10 million dollars over the duration of the seven-year chair.

The Canada Excellence Research Chair in Aquatic Epidemiology will confirm Canada's leadership in the detection and control of disease within the world's production of aquatic food. The research will guide industry practice and public policy for aquaculture and its interaction with the world's wild fish stocks.

Qualifications include a DVM (preferred, but not essential); a PhD in epidemiology or disease modeling; a willingness to focus research efforts on aquatic species; and an exceptional track record in terms of research funding, publication, and leadership.

Interviews begin before the end of August. Selected candidates must spend a minimum of one week in Prince Edward Island in October to help finalize the proposal to the CERC board. Candidates must commit to acceptance of the Chair if awarded. Additional information about the University of Prince Edward Island ([www.upei.ca](http://www.upei.ca)), Atlantic Veterinary College ([www.upei.ca/avc](http://www.upei.ca/avc)), the Centre for Veterinary Epidemiology ([www.upei.ca/cver](http://www.upei.ca/cver)), as well as AVC's Centre for Aquatic Health Sciences ([www.upei.ca/cahs](http://www.upei.ca/cahs)) can be found at their respective websites.

For more information on the CERC program, visit [www.cerc.gc.ca](http://www.cerc.gc.ca).

## AQUATIC VETERINARY JOB OPPORTUNITIES—CONTINUED

### Curacao Sea Aquarium

The Curacao Sea Aquarium, located in Willemstad, Curacao, Netherlands Antilles has a job opening for an experienced veterinarian with a specialization in Marine Mammal veterinarian care.

The Curacao Sea Aquarium ([www.curacao-sea-aquarium.com](http://www.curacao-sea-aquarium.com)) opened its facilities in 1984 and is located directly on the Caribbean Ocean.

At our premises we presently house 18 dolphins (*Tursiops truncatus*), including 6 dolphins that were born in our facility during the past 6 years. Two companies offer dolphin related programs on our premises: the Curacao Dolphin Academy ([www.dolphin-academy.com](http://www.dolphin-academy.com)) and the Curacao Dolphin Therapy & Research Center N.V.

([www.curacaodolphintherapy.com](http://www.curacaodolphintherapy.com)).

We further house 8 Patagonia Sea Lions (amongst which one born in our facility in 2008) and house an extensive collection of sea turtles, tropical fish, sharks, flamingos and pelicans. All our basins are directly connected to the open ocean and all basins provide a natural habitat for our animals.

We operate an open ocean programs with our dolphins and have a state of the art the food storage and preparation facilities. The Sea Aquarium and its affiliates employ 33 dedicated animal trainers.

Curacao forms part of the Kingdom of the Netherlands (together with Aruba, St. Maarten and others) and offers a stable living environment with good medical facilities, an excellent International School and a high standard of living.

#### The Position:

As leading veterinarian you will:

- have the opportunity to set up a state of the art marine mammal veterinarian clinic at the Curacao Sea Aquarium;

- closely monitor the health of all animals housed at the Curacao Sea Aquarium;
- train all staff on animal health care and related animal husbandry topics;
- be closely involved in our educational programs;
- be responsible for reporting on a yearly basis to our government authorities on animal health topics;
- on behalf of Sea Aquarium be closely involved with the Southern Caribbean Cetacean Network Foundation ([www.sccnetwork.org](http://www.sccnetwork.org));
- at a later stage have the opportunity to participate in veterinarian consulting possibilities for other facilities in the region;
- as leading veterinarian you directly report to the board of the Curacao Sea Aquarium.

The candidate that we are looking for:

- has a minimum of 5 years relevant working experience in a leading capacity in the Marine Mammal veterinarian care, with an emphasis on veterinarian care for dolphins;
- is a natural leader and team player;
- is a people person that enjoys a multi cultural environment;
- is an educator;
- is proficient in the English language (commanding the Spanish language is recommendable);
- is motivated by the challenge of setting up a veterinarian clinic from scratch;
- is willing to relocate to a Caribbean Island

We offer:

- a competitive salary and good secondary conditions of employment;

- the dedication to be the best possible facility regarding animal care;
- the possibility to expand the new veterinarian clinic in the Caribbean region (with Curacao as a home base)

For further information please contact Mike Schoon at:

[mike@curacao-sea-aquarium.com](mailto:mike@curacao-sea-aquarium.com)

or by telephone: (+5999) 6702480.

### Nemo, the sea lion at the Curacao Sea Aquarium



## SPONSORS AND SUPPORTERS



**PLEASE SUPPORT OUR SPONSORS,  
AND LET THEM KNOW YOU APPRECIATE  
THEIR SUPPORT OF THE WAVMA!**



## CONTACT CORNER

### 2009 WAVMA Executive Board

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[hughm@aqualifesci.com](mailto:hughm@aqualifesci.com)

**President Elect 2009**

Fotini Athanassopoulou DVM, PhD.  
MRCVS (Greece)  
[eathan@vet.uth.gr](mailto:eathan@vet.uth.gr)

**President Elect 2010**

Dr Julius Tepper (USA)  
[cypcarpio@aol.com](mailto:cypcarpio@aol.com)

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[heronpisces@btinternet.com](mailto:heronpisces@btinternet.com)

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[chris.walster@onlinevets.co.uk](mailto:chris.walster@onlinevets.co.uk)

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Peter Werkman (NLD) - 2010  
[werkman2@zonnet.nl](mailto:werkman2@zonnet.nl)

## Committee Chairs

**Aquatic Veterinary Education Committee-** Dr Scott Weber. E-mail: [fishdoc@charter.net](mailto:fishdoc@charter.net)

**Budget and Finance Committee-** Dr Dušan Palić. E-mail: [dulep@iastate.edu](mailto:dulep@iastate.edu)

**Communications Committee-** Dr Nick Saint-Erne. E-mail: [saint-erne@q.com](mailto:saint-erne@q.com)

**Credentialing Committee-** Dr Ron Roberts. E-mail: [heronpisces@btinternet.com](mailto:heronpisces@btinternet.com)

**Ethics and Governance Committee-** Dr Peter Merrill. E-mail: [wetvet@comcast.net](mailto:wetvet@comcast.net)

**Meetings Committee-** Dr Julius Tepper. E-mail: [cypcarpio@aol.com](mailto:cypcarpio@aol.com)



KOI PHOTO BY NICK SAINT-ERNE, DVM



# World Aquatic Veterinary Medical Association

One Profession; One Discipline; One Voice – Cohesive & Inclusive!

## 2009 MEMBERSHIP APPLICATION

### INITIAL APPLICATION or RENEWAL (circle one)

For your convenience please complete and mail with the correct remittance (in US\$), or credit card information, to:

Dr. Dusan Palic  
4211 Welbeck Dr.  
Ames, IA 50010-4018 USA  
Phone/Fax: (515) 294-2571  
e-Mail: [dulep@iastate.edu](mailto:dulep@iastate.edu)

#### Credit Card Payments Visa; or Master Card

Name on Card \_\_\_\_\_

Card Number \_\_\_\_\_

Expiry Date Mo / Yr \_\_\_\_\_ Card Security Code \_\_\_\_\_

Signature \_\_\_\_\_

For e-Copies - typing your name will indicate your signature

Complete **all mandatory fields marked with an \***.  
Please be as comprehensive as possible.

#### Contact Information

\*Name (First, Middle, Last) \_\_\_\_\_ Date \_\_\_\_\_

Business/Organization (if applicable) \_\_\_\_\_ Position/Title \_\_\_\_\_

\*Mailing Address \_\_\_\_\_

\*City \_\_\_\_\_, \*State/ Province/ Canton/ County (UK) \_\_\_\_\_

\*Zip/Postal Code \_\_\_\_\_, \*Country \_\_\_\_\_

\*Primary Phone \_\_\_\_\_ Is this a business ? /home ? or /cell/mobile ?

Secondary Phone \_\_\_\_\_ Is this a business ? / home ? or /cell/mobile ?

\*Primary e-Mail \_\_\_\_\_; Secondary e-Mail \_\_\_\_\_

(Secondary e-Mail addresses will be used if the primary address becomes non-functional)

#### **Check one membership category** <sup>1</sup>

**Full Member** (US\$100) **Student Member** (US\$50)

Primary Veterinary Degree (as awarded, e.g. DVM; VMD; BVMS; DEDV; Dr. vet. med.; MVZ, etc) \_\_\_\_\_

Year \_\_\_\_\_; University \_\_\_\_\_; City \_\_\_\_\_; Country \_\_\_\_\_

**Veterinary Technician/Nurse Member** (US\$50)

Name of supervising veterinarian \_\_\_\_\_; Phone \_\_\_\_\_; e-mail \_\_\_\_\_

**Affiliate Member** (US\$100)

\*Degree \_\_\_\_\_; \*Year \_\_\_\_\_; \*University \_\_\_\_\_; \*City \_\_\_\_\_, \*Country \_\_\_\_\_

**Allied Veterinary Organization Member** (US\$500)

\*Total number of current members \_\_\_\_\_; \*Number (or %) of members that are *veterinarians* \_\_\_\_\_;

\*Estimated number of members involved with *aquatic veterinary medicine* (any species/disciplines) \_\_\_\_\_

Would you like any information to be excluded from your membership listing in an Annual Membership Directory? If so, please specify what information you want excluded \_\_\_\_\_

#### <sup>1</sup> **Membership Categories & Privileges**

**Full Member**—individual veterinarians that have graduated from veterinary Schools, Colleges or Universities recognized by any country as being a prerequisite for practicing veterinary medicine. Full Members are eligible to be nominated and serve as WAVMA Officers, and to serve on any WAVMA Committees.

**Allied Veterinary Organization Member**—legally formed organizations or entities (association/society) whose members are predominantly veterinarians. Allied Veterinary Organization Members are eligible to appoint a delegate and alternate delegate (must be WAVMA Full Members in good standing) to serve on the WAVMA Advisory Council.

**Student Member**—students enrolled fulltime in veterinary Schools, Colleges or Universities recognized by any country as being a prerequisite for practicing veterinary medicine. Student Members are entitled to all the rights and privileges of Full Members, except to serve as an Officer of the Association, or to vote in any general election, referendum or ballot of the association's Full Members.

**Veterinary Technician/Nurse Member**—any non-veterinarian that is employed to assist in the legal practice of veterinary medicine, while under the direct supervision or direction of a veterinarian. Veterinary Technician/Nurse Members are entitled to all the rights and privileges of Full Members, except to serve in any voting capacity on any committees, councils, trusts, boards, liaisons or other entity that may be formed to do Association business.

**Affiliate Member**—any non-veterinarian that is a graduate of a nationally recognised university or institution of higher education, and who supports the Mission and Objectives of the Association. Affiliate Members are entitled to all the rights and privileges Student Members, except to serve in any voting capacity on any committees, councils, trusts, boards, liaisons or other entity that may be formed to do Association business.

## **World Aquatic Veterinary Medical Association**

WAVMA Secretary  
Dr. Chris Walster  
Chris.Walster@onlinevets.co.uk

WAVMA Newsletter Editor  
Dr. Nick Saint-Erne  
Saint-Erne@q.com

**One Profession; One Discipline;  
One Voice – Cohesive & Inclusive!**



### **WHO ARE WE**

The mission of the World Aquatic Veterinary Medical Association is to serve the discipline of aquatic veterinary medicine in enhancing aquatic animal health and welfare, public health, and seafood safety, in support of the veterinary profession, aquatic animal owners and industries, and other stakeholders.

### **The purpose of the World Aquatic Veterinary Medical Association is:**

- To serve aquatic veterinary medicine practitioners of many disciplines and backgrounds by developing programs to support and sustain members, and the aquatic species industries that they serve.**
- To identify, foster and strengthen professional interactions among aquatic medical practitioners and other organizations around the world.**
- To be an advocate for, develop guidance on, and promote the advancement of the science, ethics and professional aspects of aquatic animal medicine within the veterinary profession and a wider audience.**
- To optimally position and advance the discipline of aquatic veterinary medicine, and support the practice of aquatic veterinary medicine in all countries.**

**[ We're on the Web: ]**

[WWW.WAVMA.org](http://WWW.WAVMA.org)

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