World Aquatic Veterinary Medical Association

Aquatic Vet News

World Aquatic Veterinary Medical Association

2nd Quarter 2011 Volume 5: Number 2

Elections for 2012 WAVMA Officers/Directors

To meet bylaws requirements, nominations for the WAVMA Executive Board need to be submitted prior to the WAVMA Annual General Meeting, which is on July 18, 2011 (at the AVMA Convention). The Elections will be held at the Annual General Meeting at the AVMA Convention, and by electronic balloting for those who do not make the meeting. Here is the schedule for the elections:

Open online (absentee) voting system—Early July
Close online voting – July 15
AGM voting and tally all votes – July 18
Announce elections results ~July 20

Nominations for 2012 WAVMA Officers and Directors:

- **President-Elect—Mohamed Faisal**
- **Secretary—Chris Walster**
- **Treasurer—Nick Saint-Erne**
- **Director-at-Large (2 positions)-**
  Devon Dublin
  Myron Kebus

Please consider supporting WAVMA by volunteering to serve on a committee. To see a list of committees, check the Contact Corner on page 30.

WAVMA Founding (2007) Officers and Directors (from L-R): Chris Walster, Colin Johnston, Julius Tepper, Dušan Palić, Peter Merrill, Tim Miller-Morgan.
Absent – Drs. Ron Roberts and Hugh Mitchell.

Table of Contents

Click on topic to skip to that page

Aquatic Vet News

World Aquatic Veterinary Medical Association

Editor's Note

Good things are developing at WAVMA. The new website is finally functional. Great effort was put into its development by Chris Walster and David Scarfe. Please take a look at it and contribute photographs and articles to make the content informative and relevant for aquatic practitioners. We will have educational materials on the members-only section of the web site, which ultimately may be developed into online Aquatic Veterinary Continuing Education programs.

Also, another new WAVMA program, the Credentialing Committee is developing an evaluation of the core competencies to practice aquatic veterinary medicine. This certification is something aquatic veterinarians have been wanting for a long time: a way to show that they are equipped to practice aquatic veterinary medicine as well as general practice veterinary medicine. Members are invited to contact the Credentialing Committee to learn more about this new program.

The WAVMA Annual General meeting is in July at the AVMA convention. Unfortunately, I will be unable to attend the meeting, but there are many great events lined up at that convention, so you should make it there if you can! If you are not able to vote for the officers at the AGM, be sure to do so before July 15th online. You should have received an email linking to the online polling site. Thanks to all the officers and directors who have volunteered their time and talents to keep WAVMA running. Even if you (yes you, reading this note) don't have the time to commit to being an officer, at least consider volunteering for one of the committees.

Hoping you all have a happy and productive summer!

Nick Saint-Erne, DVM
Aquatic Vet News Editor
Saint-Erne@Q.com

Articles Index

Click on topic to skip to that page

Executive Reports

President's Report

I am sitting here at the beginning of June, feeling as if I have been spinning my wheels in the mud and getting nowhere. We have been anxiously awaiting the unveiling of our new website, with almost weekly setbacks. Yet I am assured by the Communication's Committee that we are almost there. Many of the problems were technical. Others were simply decisions on structural matters that might affect compromising security. What I believe is that this will be the cornerstone of our future organization. We have digital media waiting to be uploaded. We have practical questions and responses made by members from around the world that need to be archived into a searchable database. This will take time and effort, but will be of enormous value to all in the end. Anyone out there interested in working on this job?

Plans are in the last stages of finalization for our **Annual General Meeting**, to be held in St. Louis, Missouri (Monday July/18, 6:00-10:00 PM - Renaissance Grand Hotel – Hawthorne Room) in conjunction with the **2011 AVMA Annual Convention, July 16-19, 2011**. We have arranged for a private room, located at the Renaissance St. Louis Grand Hotel, 800 Washington Avenue, St. Louis, MO, 63101, (314) 621-9600 for Monday, 07/18/2011 from 6-10 PM. There will be a prepared dinner buffet, with soft drinks available throughout the evening. If you are going to the AVMA convention, please join us for a brief business meeting and lively conversation. The dinner and meeting will be complimentary for members and their guests.

Please try to join us if you will be at the AVMA Convention. Remember also an important part of the Annual General Meeting is the election of new officers for 2011. One of the benefits of being a member of an organization like WAVMA is the ability to participate in the direction of the Association. We are looking for individuals to contribute their talents in a number of leadership positions.

Please email me if you and your guest would like to attend. I am trying to get a head-count for dinner ....

Also, don't forget to stop in and say hello at our Booth #2231 located in America's Center.

Hope to see you there…

Julius Tepper, DVM
2011 WAVMA President
cypcarpio@aol.com

Meet the Nominee for President-Elect 2012:

Mohamed Faisal BVSc, Cairo University 1973; MSc (Microbiology), Cairo University 1977; PhD, University of Ludwig-Maximillian, Germany 1982.

Aquatic Veterinary Experience: Dr. Faisal's PhD dissertation focused on the spring viremia of carp virus. Since 2001 he has been a professor of aquatic animal medicine at the Department of Pathobiology & Diagnostic Investigation at Michigan State University-College of Veterinary Medicine. Prior to that, he was a professor at the School of Marine Science, College of William and Mary, Virginia, USA. As a veterinarian, he devoted his career to the study of diseases affecting aquatic animals (both freshwater and marine). His specific interests include deciphering the mechanisms of the pathogen host interactions; how the pathogen invades its host and overcomes its immune system and how the host reacts to combat the intruding microbes. Over a 38 year career he has tried to advance his field of specialization through hard work, innovation, and teaching. During his relatively short tenure at MSU, he established an Aquatic Animal Medicine Program that integrated MSU, Michigan Department of Natural Resources and Environment, Michigan Department of Agriculture, and the Great Lakes Fishery Commission. At the international level, Dr. Faisal is the Lead Scientist and Co-Founder of the Living Oceans Foundation, which is undertaking important research to mitigate the effects of diseases on coral reef biodiversity. He is also on the International Pollution Responses in Marine Organisms Association and is Consultant to the Secretary General of the UN on pollution issues. He established a central laboratory for fish disease diagnosis in Senegal in 2008.

Vision & plans for WAVMA: "To me, WAVMA is a dream come true and therefore I am looking forward to continue serving WAVMA members. The work of last year has resulted in a proposal for certifying veterinarians working in aquatic animal medicine. This is a great milestone, which I am looking forward to fine tune its components until implemented. I plan to reach out to veterinarians across the globe, particularly those practicing in remote areas and connect them to WAVMA. By year 2050, it is estimated that half of the world's animal protein will come from aquaculture. I envision that WAVMA will be central in coordinating efforts to provide veterinarians with the knowledge needed to support this rising industry and determine the needed aquatic veterinary infrastructure. Through providing opportunities for rigorous training, encouragement of innovative research, involvement in brain-storming discussions and reaching out to interested veterinarians, WAVMA has become the world organization that unites aquatic veterinarians together. I plan to foster WAVMA leadership and extend its umbrella."

Secretary's Report

The second quarter of the year saw WAVMA represented and members presenting at several meetings. A couple that come to mind were the SAVMA (Student American Veterinary Medical Association) Convention where several WAVMA members manned the booth, answered questions on aquatic veterinary medicine and generated new student members. This was also a meeting where AVMA and WAVMA jointly occupied booth space to promote aquatic veterinary medicine. Similarly, both AVMA and WAMA attended and promoted aquatic veterinary medicine at an Aquaculture Insurance Risk Management Conference in Ireland in April (www.aquacultureinsurance.com), where for the third time running WAVMA members were asked to speak — demonstrating the importance of veterinarian's involvement in aquaculture. Up to 40% of insured losses are due to disease.

Many members attend conferences and promote WAVMA, often at their own expense unless other organisations are supporting them. This not only generates interest in WAVMA but also aquatic veterinary medicine, which in turn assists WAVMA in fulfilling it's mission statement. I am sure the Board joins me in thanking these members for their time and efforts.

During this period plans have been finalised for several meetings during the summer that WAVMA has played an important roll in. The first in July will be the WAVMA Annual General Meeting which will be held during AVMA Convention in St Louis. The second will be on August 14-16, 2011 where WAVMA will participate in the 2nd International Aquaculture Biosecurity Conference in Trondheim, Norway (www.iabconference.org). Then on October 11-14, 2011 several members will be giving presentations during the WAVMA-organized aquatic veterinary sessions at the World Veterinary Congress in Cape Town, South Africa (see http://conference2011.wavma.org). As part of the World Veterinary Congress, WAVMA will host a two day biosecurity workshop that will be open to veterinarians, paraveterinary professionals and producers. This is the second time that WAVMA has jointly organised aquatic sessions at the WVC.

Although mentioned elsewhere in this AVN, I should briefly mention the Executive Board elections are in progress. All members are encouraged to stand and contribute to the further development of WAVMA. Admittedly there is a monthly time commitment but you are helping to promote aquatic veterinary medicine, which aids your practice's income stream and looks good on your CV.

Perhaps the most exciting news is that the new website **will** be up by the time you read this. There are some sections that will not be live, others requiring further development and additional pages to add, but you will be able to see it is a vast improvement on our current website. Over the summer more sections will become available for members and I hope you will find it a very useful resource. I recommend you browse through its pages to see what it has to offer in the way of information, member services and promotion. Whilst the content is not as full as I would like, what is there will give you a very good flavour of its potential and I hope encourage you to contribute either with news items, a blog, images, meetings or ideas on how to improve it. The website is your resource but can only develop to its full potential if all members contribute and use it.

The website might not appear as big a project as it has been or necessarily reflect all the effort that has gone into it, but it has taken many hours to put together. The Executive Board first discussed a new website back in 2008 and agreed a budget allowing work to start towards the end of 2009. The first step was deciding on what content was required and what services members wanted, which perhaps was the easiest bit. The next step was learning the technology and trialling several programs to see what suited WAVMA.

Examples would be what program to use for the webinars (balance of cost and functionality) and learning the nuances of the CMS (Content Management System) which has been essential. It has been a steep learning curve with a lot of effort having been put in to ensure the site is easy to update and remains dynamic. Early on in the project it became very apparent that unless it was easy to put content up, then people got discouraged. The end result I hope is a site that is useful to members and easy to maintain.

I certainly appreciate more fully the problems and feel more sympathy for those involved in IT projects that go past the completion date and break the budget. I can assure members that the budget set by the Executive Board has not been broken (partly due to the generosity of Netbusiness with their time and patience in helping develop the new website) but the completion date has consistently been put back. Even at this late stage when in the previous AVN I believed it would be completed after 3-4 hours work on tidying up, in the end, it has probably taken 4-5 days to get to a point where it can go live and probably requires several more days until full completion. The Board thanks all of those who have worked on this project and contributed content.

I cannot stress enough that for the website to realise its potential every member needs to use it and consider contributing something to it. You can either send content and ideas directly to me or submit it through the website. Please take a look at the website and contribute to its content what you can.

Chris Walster BVMS MVPH MRCVS
WAVMA Secretary
chris.walster@onlinevets.co.uk

Treasurer's Report

It is hard to believe that the year 2011 is half through. It seems like it just started! But the cicadas are humming outside and that tells me for sure it is summer. And summer is time to send a reminder that some WAVMA members have not yet paid their 2011 dues!

For those who have paid—Thank You! Your support has kept the Association going and growing—with things like the new website and the upcoming Aquatic Veterinarian Credentialing Program. Remember, dues are by Calendar year (January-December) and so you need to pay at the beginning of each year the dues for that year.

Now that the work on the newsletter is completed, I will be sending out your WAVMA membership cards by email to those who have paid their dues—and a reminder to those who have not yet paid them. If you are not certain about your dues status, you can email me and I can verify your last payment. You can also go online to the new website, and it is very easy to pay your dues there:

http://www.wavma.org/membership-payments

WAVMA is over 200 members strong, and we will continue to support Aquatic Veterinarians, and hope that those whose veterinary practice includes working with fish and other aquatic animals will continue to support WAVMA.

Nick Saint-Erne, DVM
2011 Treasurer
Saint-Erne@Q.com

WAVMA New Members

Members are the life-blood of any professional Association. Please join us in welcoming the following new members:

Full Members:

John McArdle
Elizabeth Lawrence
Dawn Buhrow
Robert Jones

Student Members:

Jo Bannister
Erin Dresner
Joanne Fernandez-Lopez

WAVMA Committee Reports

Communications Committee

Committee Members:
Devon Dublin, Kirstin Kamps, Nick Saint-Erne, David Scarfe, Chris Walster, Peter Werkman

The WAVMA Communications Committee is embarking on a large project to identify a primary contact person at each veterinary school. We request your help.

The initial objective is to utilize a contact person at each Veterinary School to distribute WAVMA news and information to students, faulty and staff that are interested or involved with any aspects of aquatic veterinary medicine.

We also hope to use that person to assist in providing information about that vet school's aquatic courses that are part of the veterinary curriculum, vet student externships, post-graduate degrees (MS/MSc/PhD), aquatic veterinary internship and residency programs, and other continuing education and professional development (CEPD) courses that the vet school oversees.

If we accumulate sufficient information we hope to build a searchable online database (accessible through the new WAVMA website). Furthermore, if there is sufficient interest, it may be possible to develop WAVMA Student Chapters at all vet schools.

If you are willing to serve as such a contact person, or know of a suitable individual at the Veterinary School where you graduated who might serve in this roll, please send their full contact information to dscarfe@ameritech.net.

Best regards,

A. David Scarfe PhD, DVM, MRSSAf
Chair, Communications Committee
Off: (847) 285-6634
dscarfe@ameritech.net

Photo by Nick Saint-Erne

Student Committee Report

Graduation was a few weeks ago and I'm still working to find employment. Currently I'm in Rhode Island attending AQUAVET II. I'll be addressing the AQUAVET I students about WAVMA. There are a few students here who are already members and have expressed interest in getting more involved in the organization so I will work on following up with them.

Cheers,
Kirstin Kamps
Student Committee Chair

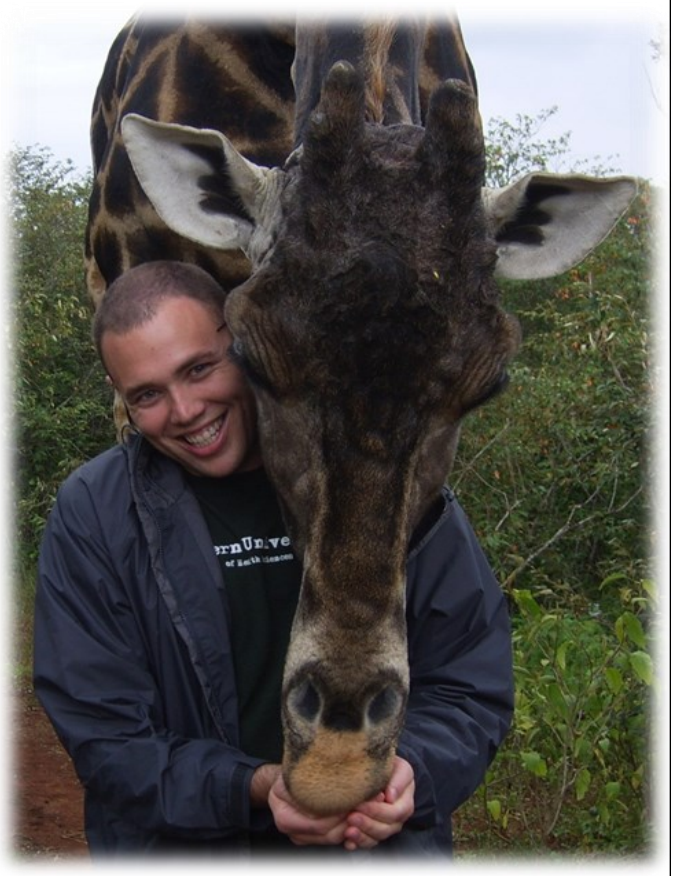
Student Activities

In observance of the 250th Anniversary of Veterinary Education in the world, a lecture was delivered by **Dr. Devon Dublin** at the Faculty of Fisheries Sciences, Hokkaido University, where he is a graduate student. While this may seem as a perfectly normal development, it was actually a first. The reason lies in the peculiarity of the Japanese education system as it relates to Aquatic Veterinary Medicine.

In Japan, certification is given to individuals to practice aquatic medicine who have completed a specially tailored course involving diagnosis, treatment and surgical intervention in fishes and aquatic mammals. They are by no means veterinarians, but fish health specialists for want of a better word.

His lecture outlined the transition of veterinary medicine, the role of veterinarians and technicians, the work of the WVA, OIE and WAVMA and the recent advancement in aquatic veterinary medicine. Special thanks to Dr. Peter Werkman for granting permission for the use of his photos and materials in this presentation.

Meet the students



Brandon with Jocque at Giraffe Manor in Kenya

Brandon Boren is a member of the WAVMA Student Committee. He joined WAVMA in July of 2009. He has been a Student Committee member since 2010. He graduated from UC Santa Cruz in 2004 with a B.S. in Marine Biology. His original intention was to be a marine biologist but in junior year of undergrad he decided to pursue veterinary medicine as he wanted to have a more active role in animal health. Originally, research was not of interest to him but he quickly changed his mind after attending IAAAM and AAZV conferences.

Brandon received his DVM from Western University of Health Sciences in 2010. He is currently completing a small animal rotating internship in Mesa, Arizona. After that he hopes to move back to Southern California to work in small animal medicine until he can make his way into the Aquatic and Zoo animal field. He ultimately wishes to become a Diplomat of the American College of Zoological Medicine. His dream job would include working at a zoo (with aquatic animals) or aquarium which has a diverse collection, and actively participate in conservation, research projects and SSPs.

IAAAM Las Vegas 2011 Conference Report

From May 7-11, 2011 The Mirage Hotel in Las Vegas, Nevada hosted the 42nd Annual Conference for the International Association for Aquatic Animal Medicine (IAAAM). A wide variety of topics were presented this year, ranging from those discussing the recovery efforts of the responders on the front line of the BP Oil Spill of 2010, to topics which pertain to both captive and free ranging fin fish, invertebrates, elasmobranches, marine mammals, sea turtles and marine birds.

There were 28 posters presented and 87 oral presentations given. The species breakdown consisted of 39 cetaceans, 31 pinnipeds, 6 manatee, 1 otter, 13 fish, 7 turtles, 5 birds and 3 invertebrate with 10 mixed/general aquatic animal/marine mammals.

Prior to the formal conference beginning, there are additional sessions or wet labs available, this year these included Latin American Marine Mammal Workshop, and marine mammal intra-oral radiology. There were also special evening sessions which covered Elasmobranches and Sea Turtles, techniques in ultrasound of aquatic animals, a student session on presenting, and a conundrums session for clinicians to get input from colleagues on challenging cases.

The exhibitor's Hall consisted of numerous sponsors ranging from aquatic institutions, pharmaceutical companies, food and medical suppliers, as well as many other supporters. The Mirage was a gracious host and we were able to view Siegfried and Roy's Secret Garden and Dolphin Habitat as well as Shark Reef at Mandalay Bay for the duration of the conference. There were multiple evening activities aimed at maximizing networking opportunities, including an "icebreaker", evenings out as a group, and an Awards banquet.

At the conclusion of the conference there was the opportunity to travel to a local attraction, Red Rock Canyon National Conservation area. The conference provided an opportunity for students, veterinarians, and biologists to share their research or a case study. Students were able to gain insight into the types of research being conducted at different institutions, as well as possible career options. All in all it was a very informative conference and there was "something for everyone." We are looking forward to next year's conference, which will be hosted by Georgia Aquarium in Atlanta, May 12-16, 2012. For more information please visit www.iaaam.org.

Brandon Boren, DVM
Samara Parker, Atlantic Veterinary College (2012)
WAMVA Student Members

Meetings Committee Report

As of the moment I am writing this, plans are in the last stages of finalization for our Annual General Meeting, to be held in St. Louis in conjunction with the 2011 AVMA Annual Convention, July 16 - 19, 2011. We have arranged for a private room, located at the Renaissance St. Louis Grand Hotel, 800 Washington Avenue, St. Louis, MO, 63101, (314) 621-9600 for Monday, 07/18/2011 from 6- 10 PM. There will be a prepared dinner buffet, with soft drinks available throughout the evening. If you are planning to attend the AVMA convention, please join us for a brief business meeting and lively conversation. The dinner and meeting will be complimentary for members and their guests. Also, don't forget to stop in and say hello at our booth #2231 located in America's Center.

In August, from the 14-17th, we will be one of the collaborating organizations of the Second International Aquaculture Biosecurity Conference & Workshop, taking place in Trondheim Norway. The goal of the 2011 Conference and Workshop is to provide science-based expert opinions and tools, with conference participant interaction, for developing and implementing practical, economic and effective biosecurity plans and programs. The full program comprises of two days of presentations from internationally-recognized invited keynote speakers, and contributed oral and poster presentations, and a 2-day biosecurity workshop on working aquaculture operations.

In keeping with our desire to present our organization as a truly international one, we will also be present at the World Veterinary Congress 2011, to be held in Cape Town, South Africa from October 10-14. The theme "CARING FOR ANIMALS: HEALTHY COMMUNITIES" lends itself to fulfilling a global need and sets the scene for a varied, stimulating, multi-session scientific and professional program, catering to the diverse needs of a multi-disciplined veterinary profession.

Finally, we are moving forward with plans to present a scientific program at Aquaculture America, which will take place from Feb.28-March 2, 2012 in Las Vegas, Nevada, USA. If you would like to be part of the WAVMA presentations at this meeting, please contact me about your presentations.

I look forward to seeing all of you at one of our upcoming events …

Dr Julius Tepper
Meetings Committee Chair
cypcarpio@aol.com

ListServ Letters

Dear WAVMA members,

I know this listserve is geared towards case discussions, but I was hoping someone wouldn't mind giving me some advice. I am a third year student at Iowa State University, USA. I was wondering if anyone had advice for a student who is just beginning to explore an interest in aquatic medicine (i.e., textbooks/resources, continuing (or in my case starting) education, personal experience, etc...).

You can email me directly at delipson@iastate.edu instead of the listserve if it's easier.
Thanks for your feedback,

Danielle Lipson
delipson@iastate.edu

Dear WAVMA Members,

My name is Jo Bannister and I am a **final year, veterinary student** at Murdoch University. I am seeking a two-week externship in fish health/aquatic medicine in October 2011 (**10th - 21st October 2011**). As part of our degree, we need to complete special topics in an area of vet medicine/science that we are particularly interested in. I am extremely keen on becoming a fish vet and would love to pursue a career in fish health and medicine. I am very willing to travel and gain experience with all aspects of fish health and would be very grateful for the opportunity to further my skills and knowledge in this field. Please contact me on +61 (841) 630-5653 or email jo.bannister@bigpond.com if you know of any professionals or courses willing to take a vet student for a two week externship. Please see following brief details below about what Murdoch University veterinary school requires in an externship:

An externship can be undertaken with a veterinarian either in clinical practice or other veterinary facility. Most externships will be undertaken in an equine, dairy/beef cattle or small animal practice. A Murdoch staff member will coordinate electives in each of these disciplines.

Students must contact the veterinary practice or institution directly, make arrangements for a period of study equivalent to 10 days work/supervision, and inform the supervising Murdoch staff member of the name of the practice/institution and proposed dates of study. The supervising Murdoch staff member must grant approval before final arrangements are confirmed.

- Externships must be undertaken as a single block of time covering a 2 week period.
- An externship will normally be under the direct supervision of a veterinarian or a number of veterinarians in a practice. Permission must be sought if a veterinarian will not be involved in supervision on a daily basis (eg working in a wildlife facility with non-veterinary staff).
- The student must keep a logbook of daily activities or cases seen. In addition, you may be required to conduct a small clinical investigation, culminating in a written report. The case log and the report must be submitted for assessment to both the supervising veterinarian and the supervising Murdoch staff member. Other forms of assessment may be required at the discretion of the supervising Murdoch staff member.
- Externships are usually undertaken in the 4 week block that is set aside in the 5th year timetable for Special Assignments - in 2009, these dates are 12 October to 6 November. Students wishing to use the mid year break to complete a 2 week externship for Special Assignments need to start planning this as soon as possible and notify Prof Read in writing PRIOR TO the arrangements being confirmed.'

Thank you very much for your time,
Kind regards,

Jo Bannister — Perth, Australia
jo.bannister@bigpond.com

Dear WAVMA Members,

When I travel, I read local papers. I was recently in Grenada and found two articles of note in the April 23, 2011 news papers.

One was on the local fisherman's association announcing the release of a product they call "Bacon of the Sea". They are naturally smoked salt-fish strips. Apparently it received funding from the Canadian International Development Association. They hope to market it worldwide and it is a form of protein that can be used to sustain people on a diet of rice and grains. I think Granada can be used as a model for coastal management. I will investigate it further.

Another article announced the establishment of the Grenadines Network of Marine Protected Areas. Apparently this is a way to collaborate from St. Vincent all the way down the isles to Grenada. They see the need for interaction even though it involves 2 counties over 15 islands.

Financial support came from the U. S. National Fish and Wildlife Services and the Specially Protected Areas and Wildlife Protocol of the Cartagena Convention administered by the Caribbean Environment Programme (that's how they spell it) of the United Nations Environment Programme, with funding from the Agency of the Italian Ministry of Foreign Affairs. That's a mouthful and I am just quoting out of the article.

I wish I knew how to get involved with all this. Grenada is high up on my list of places to stay a while. I am taking the Sea-Vet course at the University of Florida School of Veterinary Medicine this June. I will let WAVMA members know more information about the program at the UFL after I complete that course.

Respectfully,

Dave Kestenman, DVM
kestdvm@yahoo.com

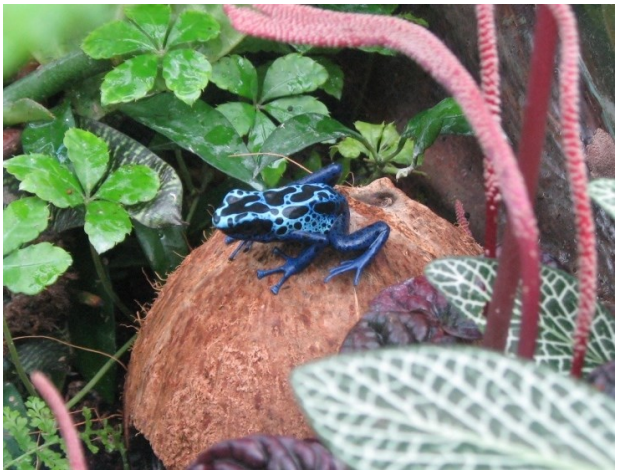


Photo by Nick Saint-Erne

WAVMA Mentoring Program

Purpose: To provide an opportunity for student members to be guided and advised by full members of the organization in their pursuit of a career as an Aquatic Veterinarian.

Let's make a difference in each others' lives!

Are you interested in being a Mentor?

Would you like to apply to be a mentee?

Do you wish to receive additional information?

Contact us at:
WAVMA_Student_Cmte@mailhost.wavma.org

Literature Reviews / Clinical Abstracts

Compiled by A. David Scarfe *PhD, DVM, MRSSAf*

WHITE SPOT SYNDROME VIRUS: AN OVERVIEW ON AN EMERGENT CONCERN.
Sánchez-Paz A (2010). *Vet. Res.*, 41(6): 43pp. (An open access prepublication accessible at www.vetres.org.)

Abstract

Viruses are ubiquitous and extremely abundant in the marine environment. One of such marineviruses, the white spot syndrome virus (WSSV), has emerged globally as one of the most prevalent, widespread and lethal for shrimp populations. However, at present there is no treatment available to interfere with the unrestrained occurrence and spread of the disease.

The recent progress in molecular biology techniques has made it possible to obtain information on the factors, mechanisms and strategies used by this virus to infect and replicate in susceptible host cells. Yet, further research is still required to fully understand the basic nature of WSSV, its exact life cycle and mode of infection.

This information will expand our knowledge and may contribute to developing effective prophylactic or therapeutic measures. This review provides a state-of-the-art overview of the topic, and emphasizes the current progress and future direction for the development of WSSV control strategies.

Emerging Viral Diseases of Fish and Shrimp.
Walker PJ & JR Winton (2010). *Vet. Res.*, 41(6): 24pp. (An open access prepublication accessible at www.vetres.org.)

Abstract

The rise of aquaculture has been one of the most profound changes in global food production of the past 100 years. Driven by population growth, rising demand for seafood and a levelling of production from capture fisheries, the practice of farming aquatic animals has expanded rapidly to become a major global industry.

Aquaculture is now integral to the economies of many countries. It has provided employment and been a major driver of socio-economic development in poor rural and coastal communities, particularly in Asia, and has relieved pressure on the sustainability of the natural harvest from our rivers, lakes and oceans. However, the rapid growth of aquaculture has also been the source of anthropogenic change on a massive scale.

Aquatic animals have been displaced from their natural environment, cultured in high density, exposed to environmental stress, provided artificial or unnatural feeds, and a prolific global trade has developed in both live aquatic animals and their products. At the same time, over-exploitation of fisheries and anthropogenic stress on aquatic ecosystems has placed pressure on wild fish populations. Not surprisingly, the consequence has been the emergence and spread of an increasing array of new diseases.

This review examines the rise and characteristics of aquaculture, the major viral pathogens of fish and shrimp and their impacts, and the particular characteristics of disease emergence in an aquatic, rather than terrestrial, context. It also considers the potential for future disease emergence in aquatic animals as aquaculture continues to expand and faces the challenges presented by climate change.

Transmission of Cyprinid herpesvirus-3 (CyHV-3) from goldfish to naïve common carp by cohabitation.
El-Matbouli M & H Soliman (2011). *Res. Vet. Sci.*, 90(3):, 536-539.

Abstract

Cyprinid herpesvirus-3 (CyHV-3) has spread worldwide and has had a major impact on koi and common carp production. Previous studies on the host range of the CyHV-3 found that fish species other than koi and common carp are fully resistant to natural virus exposure. Recently, CyHV-3 was detected in goldfish (*Carassius auratus auratus*) that were in contact with CyHV-3 infected koi. In the present study, a specific RT-PCR product was amplified from the viral thymidine kinase gene in gills, intestine and brain tissues of CyHV-3 infected goldfish. This implied that CyHV-3 replicated in these goldfish. Also, in the presence of a stress factor such as temperature fluctuation, the CyHV-3 infected goldfish transmitted the virus to cohabitated naïve SPF common carp. CyHV-3 DNA was detected in the cohabitated naïve carp tissues by PCR. The results of this study demonstrate that goldfish are carriers for CyHV-3, permit virus propagation, and disseminate the virus to susceptible carp causing the disease.

Francisella infections in farmed and wild aquatic organisms (Review).
Colquhoun, DJ & S Duodu (2011). *Vet. Res.*, 42(47)

Abstract

Over the last 10 years or so, infections caused by bacteria belonging to a particular branch of the genus Francisella have become increasingly recognised in farmed fish and molluscs worldwide. While the increasing incidence of diagnoses may in part be due to the development and widespread availability of molecular detection techniques, the domestication of new organisms has undoubtedly instigated emergence of clinical disease in some species.

Francisellosis in fish develops in a similar fashion independent of host species and is commonly characterised by the presence of multi-organ granuloma

and high morbidity, with varying associated mortality levels. A number of fish species are affected including Atlantic cod, Gadus morhua; tilapia, Oreochromis sp.; Atlantic salmon, Salmo salar; hybrid striped bass, Morone chrysops x M. saxatilis and three-lined grunt, Parapristipoma trilinineatum. The disease is highly infectious and often prevalent in affected stocks. Most, if not all strains isolated from teleost fish belong to either F. noatunensis subsp. orientalis in warm water fish species or Francisella noatunensis subsp. noatunensis in coldwater fish species. The disease is quite readily diagnosed following histological examination and identification of the aetiological bacterium by culture on cysteine rich media or PCR.

The available evidence may indicate a degree of host specificity for the various Francisella strains, although this area requires further study. No effective vaccine is currently available. Investigation of the virulence mechanisms and host response shows similarity to those known from Francisella tularensis infection in mammals. However, no evidence exists for zoonotic potential amongst the fish pathogenic Francisella.

The complete article is available as a provisional PDF accessible at www.veterinaryresearch.org/content/42/1/47/abstract.

An introduction to the practical and ethical perspectives on the need to advance and standardize the intracoelomic surgical implantation of electronic tags in fish

Brown RS, MB Eppard, KJ Murchie, JL Nielsen & SJ Cooke (2011). Rev Fish Biol Fisheries (2011) 21:1–9.

Abstract

The intracoelomic surgical implantation of electronic tags (including radio and acoustic telemetry transmitters, passive integrated transponders and archival biologgers) is frequently used for conducting studies on fish. Electronic tagging studies provide information on the spatial ecology, behavior and survival of fish in marine and freshwater systems. However, any surgical procedure, particularly one where a laparotomy is performed and the coelomic cavity is opened, has the potential to alter the survival, behavior or condition of the animal which can impair welfare and introduce bias.

Given that management, regulatory and conservation decisions are based on the assumption that fish implanted with electronic tags have similar fates and behavior relative to untagged conspecifics, it is critical to ensure that best surgical practices are being used. Also, the current lack of standardized surgical procedures and reporting of specific methodological details precludes cross-study and cross-year analyses which would further progress the field of fisheries science.

This compilation of papers seeks to identify the best practices for the entire intracoelomic tagging procedure including pre- and post-operative care, anesthesia, wound closure, and use of antibiotics. Although there is a particular focus on salmonid smolts given the large body of literature available on that group, other life-stages and species of fish are discussed where there is sufficient knowledge. Additional papers explore the role of the veterinarian in fish surgeries, the need for minimal standards in the training of fish surgeons, providing a call for more complete and transparent procedures, and identifying trends in procedures and research needs.

Collectively, this body of knowledge should help to improve data quality (including comparability and repeatability), enhance management and conservation strategies, and maintain the welfare status of tagged fish.

Surgical removal of an anal cyst caused by a protozoan parasite (Thelohanellus kitauei) from a koi (Cyprinus carpio).

Shin SP, H Jee, JE Han, JH Kim, CH Choresca; JW Jun, DY Kim & SC Park (2011). *J. Amer. Vet. Med. Assoc.*, 238(6): 784-786

Abstract

Case Description—An 8-month-old koi (*Cyprinus carpio*) fish was examined at the animal hospital at Seoul National University for anal obstruction.

Clinical Findings—The affected fish was lethargic and anorexic, appeared depressed, and had a nodular obstruction at the anus. A biopsy specimen from the anal mass was submitted for histologic examination, which revealed a number of protozoa. On the basis of the morphological characteristics of the spores and the location of the plasmodia (ie, vegetative form of the parasite), a diagnosis of a cyst containing *Thelohanellus kitauei* was made. *Thelohanellus kitauei* is a protozoan parasite that affects freshwater fish by producing cyst-like tumors that may cause intestinal obstruction. *Thelohanellus kitauei* infection with cystic disease has been reported to affect *Cyprinus* spp worldwide.

Treatment and Outcome—The cyst was removed surgically. After surgery, low-concentration tricaine methanesulfonate immersion was used for sedation and antimicrobial treatment was administered. The surgical wound healed completely, and the fish was clinically normal 14 months after surgery.

Clinical Relevance—The successful outcome in this fish suggested that surgical removal may be a viable option for treatment of *T kitauei* infection in koi fish. The results of morphological analyses provided basic information on the relationships between tissue tropism and *Thelohanellus* spp.

Colleague's Connection

The Tortuous Route of Getting Involved with Aquatic Veterinary Medicine in the Old Days

Dr. Peter Merrill

[Editor's note: Dr. Merrill was one of a small group that helped formulate the initial mission, objectives, bylaws and other legal requirements for the formation of WAVMA and served as the first President and Past-President, 2006-2007.]

As a former WAVMA President, I was asked provide a biographical sketch and to include the pathway(s) that led me to aquatic veterinary medicine. I chose to interpret this commission in the illustrative, rather than cautionary, sense. I also discovered the challenges of writing about yourself. But I encourage others to try it; it's cathartic and may inspire others.

I grew up in southern Ohio in the 1950s and '60s. I spent much of my childhood 'communing with Nature' by carefully observing my surroundings at all times (especially the weather, with which I have always been fascinated), and studying the anatomy and behavior of insects and animals at every opportunity. These important studies necessarily involved my playing hooky from elementary school for extended periods of time, which at an early age branded me in the eyes of the Educational Authorities as a radical, a surprisingly apt label that didn't bother me at all. I consider my knowledge of crow society and the length of time it takes a chicory plant to bloom after the last frost of spring to be much more important than most other stuff I was supposed to have learned in my first 8 grades.

Over my formative years, I became passingly familiar with riparian and lake biology and ecology, but I didn't actually see the ocean for the first time until I was 16.5 years old, when I was on an airplane flying past the East Coast of the U.S. en route to Puerto Rico. Nearly 45 years later, I recall that particular epiphany very well...and of thinking at that moment that I would not only make up for the lost time, but would somehow dedicate the rest of my life to working in some occupation that could allow me to be a part of the vast watery world of which I had no prior awareness. In many ways, I have done so.

I performed alternate military service for two years during the Vietnam War as an attendant at a 150-bed, medium-term urban psychiatric hospital. It was an experience that first exposed me to medicine (specifically psychopharmacology and the process of becoming licensed in Ohio to dispense medications). It taught me, among many other things, that there are indistinct boundaries separating everyone else—including me—from mental chaos. I was very interested with the complex interplay of medicinal compounds and their recipients (if not prescribers). I also assisted during that time with a number of medical procedures, ranging from spinal taps and lobotomies to administering hundreds of electroshock and hydrotherapy procedures. When I concluded those two years' service in 1971, I had acquired a decent background in psychiatric therapy and associated medicine.

At the first opportunity to escape the Midwest and its demonstrated lack of any oceans, or options to acquire any in the near future, and after a brief, ill-fated attempt to enroll as a geology major, I completed an interrupted circle of sorts by moving with my young family to New England, where my paternal forebears had lived for many generations. I attended the University of Massachusetts at Dartmouth, which in 1971—as now—had an outstanding faculty and highly affordable curriculum in biology with a marine studies option. I took every opportunity to ground myself (in a manner of speaking) in as many aquatic-related courses as I could fit into my schedule, sometimes taking as many as 7 full courses. I became a SCUBA diver in 1972, and participated in many subsequent dives under a wide variety of conditions. I also spent many hours on board research vessels (the University had a large boat that could be used extensively even by undergraduates) doing trawl collections of marine animals for research. My focus in those years was split between estuarine ecology and finfish physiology; but at that time, I had no idea that I could, or would, ever combine that training with anything else related to medicine, or with animal health.

I worked my way through those undergraduate years by learning various construction-trade skills, which came in handy sooner than I was to think. I graduated UMass/Dartmouth in 1975, only to discover that due to an ongoing recession, and despite the early promise of government funding for marine biologists, there were no longer any jobs available in research or any other sector (aquaculture hadn't actually been invented yet) where I could use my academic training. I couldn't afford to continue on in a Master's program, so was required to fall back on my business acumen immediately.

For the next nearly 20 years, I continued in the construction sector, running my own company specializing in high-end renovation of houses, first in Newport, R.I. and later in the Boston metro area. However, during those many years in mental limbo until I resumed my formal training, I participated annually in some form of scientific outreach or contact that allowed me to keep in touch with aquatic biology, including a decades-long immersion in the self-study of marine mammal physiology, and a number of stints working as a volunteer/researcher/fish biologist. I don't recommend that particular career track to aspiring veterinarians; but in fact I importantly learned in the process that I could make and keep a commitment to do basically whatever I wanted to

do.

In the late 1980s, I became a volunteer at the New England Aquarium, and participated in numerous aquatic animal rehabilitation efforts, including those for marine mammals and (later) turtles. In 1990, I reached a cathartic junction; I could either continue in an economically safe, trade/business-oriented mode or start doing what I needed to do. This was not a clear choice, but my family was entirely supportive of my forging ahead with a plan to thrust myself, and them, into (as Georg Von Trapp puts it) a 'rare and wonderful new world of.... indigestion'.

I spent a number of months debating whether to enter a Master's program for the further study of marine mammals, or even to go into pharmacology. I also conducted substantial research on opportunities to become an animal trainer, or whether to just specialize in pharmacology. At that point, after a careful assessment of the possible synthesis of aquatic biology with medicine, I realized that there were people—admittedly very few—who did do this, and started following the accomplishments of such luminaries as Sam Ridgway, Jim McBain, Don Abt, Joe Geraci and others in the developing field of aquatic animal medicine.

By 1990, I had started taking some additional prerequisite undergraduate courses to qualify for veterinary school, and to see if I had retained the ability to keep learning at the pace I knew—or thought I knew—would be required. I looked into the programs offered by those schools that included options for a focus in aquatic medicine. In 1991, at the age of 40, and after a great deal of thought about the re-direction and commitments I would need to undertake, I applied for admission to the veterinary school at Tufts University (now referred to as the Cummings School of Veterinary Medicine at Tufts). My interviewer was Dr. Mark Pokras, who, as I later discovered, had himself followed a vaguely similar pathway to his position there as a wildlife veterinarian. Despite these similarities, he did not try to sugar-coat the options I indicated I wanted to follow or to otherwise endorse my particular choices to steer along a path toward aquatic medicine; but instead gave me a realistic appraisal of the limited opportunities that existed to successfully combine aquatic biology with veterinary medicine. Fortunately I had my selective hearing working for me during that interview (and for the next 4 years), and paid little heed to his very sound advice to clearly focus on mastering the elements of more traditional veterinary medicine for small and large animal species, and leave the aquatic stuff until a later date.

During veterinary school, I was quite fortunate to be exposed to a large number of outstandingly talented faculty members and guest lecturers, and (as I'm sure is the case for most students) will always remember those years as the some of the most challenging but rewarding times of my life. The adjustment of moving from the private/business sector to veterinary medicine was neither easy, cheap nor stress-free; and I easily recall many previously-unaccustomed moments of self-doubt in terms of my abilities and choices, especially in those first three years of the program. But I discovered that my general learning experiences with marine biology, wild animal behavior/physiology, and pharmacology had prepared me well for assimilating the additional expertise needed to meld these disciplines together. In addition, there was an opportunity in the third year to enroll in a 32-hour aquatic-medicine elective. And I continued volunteering at New England Aquarium, which had begun expanding its aquatic medicine department. By the last year of vet school, I had lined up 6 full months of electives that would provide me with in-depth exposure to the spectrum of aquatic medicine, including month-long rotations through AQUA I, Sea World, the National Wildlife Health Center, New England Aquarium, and the Roger Williams Zoo in Providence, R.I.

Borrowing from my previous career in construction, one basic and important concept I learned in veterinary school is that veterinarians are given tools that no other group of people have been trained to handle; but also that the application of those tools must be tempered both by continuing experience and growing expertise if the wielder is to succeed in building anything that will last. I also learned that Dr. Pokras had been sound in advising me to thoroughly understand the principles of veterinary medicine as they apply to non-aquatic animals.

After graduating Tufts in 1996, I worked for two years as a veterinarian with the Humane Society of the United States at their wildlife hospital on Cape Cod, treating and rehabilitating a wide variety of wild animals, including many terrestrial mammals and reptiles, but also aquatic birds and even the occasional stranded (usually cold-stunned) sunfish. I also continued my affiliation, through the Cape Cod Stranding Network, with the New England Aquarium's stranding response for marine mammals and turtles on the Cape. I had many unforgettable experiences working with such animals, sometimes dealing as a first responder with dolphin strandings in the dozens or hundreds. I also participated in necropsies of numerous small and large cetaceans, either as part of the CCSN or through the NOAA-NMFS facility in Woods Hole, MA.

In 1998, I moved to Maine to begin a new tangent in my career, first affiliating with the (then-Northeast) Marine Animal Lifeline as a full-time veterinary volunteer caring for hundreds of stranded seal pups of a variety of species. During that period, I also worked in various small animal clinics throughout southern Maine on a relief basis. In late 1999, after hearing of a possible vacancy from an AQUAVET alumnus, I joined the staff at Micro Technologies, a private laboratory in the mid-coast Maine area that specialized in the development of aquatic pathogen detection assays. During the next

nearly 6 years there, I worked closely with state and federal regulators on a continuous basis, and also provided veterinary services to aquaculture companies variously engaged in Atlantic salmon, trout, cod, halibut, flounder, sturgeon, and shellfish (mollusk) farming. I attended AQUAVET II in 2000, where I became interested in shellfish pathology; and later used those skills at the laboratory. I was also fortunate in 1999 to have an opportunity to volunteer at the Marine Mammal Center in California during the sequellae to a 1998 stranding of hundreds of sea lion pups due to El Nino effects.

In 2001, a catastrophic outbreak of Infectious Salmon Anemia in Maine farmed salmon sites devastated that industry and I participated in the development of a new federal approach to disease management that was funded by USDA's Veterinary Services, with cooperating assistance from Maine state authorities. Part of that joint government/industry-led approach involved the development of new biosecurity standards, which were implemented and audited as a condition for eligibility for federal indemnity to cover massive economic losses as the disease spread (and was eventually contained) over the next two years. During this phase, I received valuable background instruction from Dr. H. Michael Opitz, a professor and pathologist at the University of Maine, and a former poultry veterinarian who had successfully applied his extensive experience with biosecurity and disease management in that industry to the benefit of Maine aquaculture producers. I also worked with Micro Technologies' staff on a large number of research projects investigating new drugs for aquatic animal species, and helped design and build a substantial wetlab for disease research at the University of Maine in Walpole, ME, as funded by several grant programs.

In addition to its disease investigative and research efforts, Micro Technologies also provided lab and veterinary services to a large and diverse collection of state resource agencies and private individuals engaging in aquaculture throughout New England, and I had extensive exposure to the physical, pathological, technical, economic and political aspects that are associated with successful aquaculture operations of any type. During my time at Micro Technologies, I learned in many ways and from the many other personnel with whom I interacted that biologists and other non-veterinarians play an extremely important role in the overall support process that is key to achieving effective aquatic disease management. I also learned that even though this might be intuitive, it also has the potential to create a good deal of friction among the different factions, who might not perceive the synergy involved.

From 2002 until 2005, I was a member on the AVMA's advisory committee formerly known as the Aquaculture and Seafood Advisory Committee (now called the Aquatic Veterinary Medicine Committee), representing the research community. My experiences on that committee with Dr. A. David Scarfe of the AVMA, and with other ASAC members, were to lay the foundation for future involvement with WAVMA.

In 2005, I applied and was hired for a newly-created aquaculture position at the National Center for Import and Export, a section of USDA's Veterinary Services. In my first three years with VS, I developed additional regulations for certain imported fish, and served as a liaison with my VS counterparts charged with developing a National Aquatic Animal Health Plan. Since 2008 I have been a supervisor in my section, and now oversee the staff who deals with the importation of all USDA-regulated live animals and their germplasm to the United States; but I continue to be closely involved with the oversight of import regulations and export protocols for aquatic animals. In my regulatory capacity, I develop and clarify specific animal import regulations and policies, supervise the permitting systems used for live animals; and regularly interact with many other federal agencies, Veterinary Services' field staff, accredited veterinarians and laboratory personnel throughout the U.S, in addition to working with the national veterinary staffs of other countries. In these capacities, I have given a large number of technical presentations on aquatic animal medicine over the years, including at AVMA conventions, AQUAVET sessions, and the U.S. Animal Health Association's annual meetings.

In 2006, I joined the group of talented and experienced founding veterinarians behind the creation of WAVMA as a Director; over the next year we collectively shepherded the Association into being, after formulating the Charter and Standing Committees. I served as WAVMA President from its inception through 2007. I remain on the WAVMA board as nominal chair of the Ethics and Governance Committee. Since 2008, my WAVMA participation has been necessarily--if temporarily—limited, owing to my extensive supervisory duties with USDA. My admiration for the original and succeeding WAVMA Directors and officeholders has only increased over time as I appreciate how dedicated they truly are, and how difficult it is for them and indeed for all of WAVMA's membership to balance the energy needed to nurture a growing society along with the vicissitudes of surviving/thriving as a veterinarian of any type. I can only say that it has been well worthwhile for me to have taken the course that I have to date with respect to aquatic animal medicine, and that the rewards continue to amass.

After some 30 years of progression, aquaculture in the U.S. is at a developmental crossroads where its evolution can be either convergent or divergent; WAVMA has provided and will continue to provide extremely important inputs and outputs that can influence how that equation will develop.

My advice to budding (or even established) veterinarians looking to begin or broaden their involvement in

aquatic animal medicine is to research and utilize the multitude of resources—human and physical—that are available through WAVMA and other venues to help you in this respect. As aquaculture continues to develop as a viable industry in the U.S and around the world, its proponents (and even opponents) will increasingly realize the value of the fundamental veterinary medical principles applicable to all species.

And lastly, I'll also include a brief 'Tools in My Toolbox' section here about some of the people who have been what I'd consider major influences, for better or worse, on my personal development. In no particular order, my 'Heroes' list runs partially as follows: Peter Jackson, Leonardo Da Vinci, Walt Disney, Ken Kesey, Murray Perahia, Woody Allen, James Joyce, Oscar Peterson, Jacques Cousteau, Richard Brautigan, Thomas Edison, Carl Orff, William Faulkner, Clint Eastwood, James Taylor, George Orwell, L. Frank Baum, Piotr Tchaikovsky, William Shakespeare, Charles Darwin, Albert Einstein, W.A. Mozart, Dennis Austin/Thomas Rudkin, Niccolo Machiavelli, Matt Groening, Isaac Newton, Benjamin Franklin, Claude Debussy, Hermann Hesse, J.S. Bach, Claude Monet, Alf Wight, Heinrich Schutz, Felix Mendelssohn, Bill Gates, Frederick Chopin, Jimi Hendrix, George Page, Lou Rukeyser, Steely Dan, the Beatles, Kurt Vonnegut, Rodgers & Hammerstein, George Lucas, Steve Jobs, Franz Schubert, Andrew Stanton/John Lassiter, Laurence Olivier, Johannes Brahms, Mel Blanc, William Kotzwinkle, Chick Corea, Jorge Luis-Borges, Herbie Hancock, Jack Kerouac, I.M Pei, Michelangelo, J.J. Richardson, Taj Mahal, and Aldous Huxley.

Dr. Peter Merrill
wetvet@comcast.net

Aquaculture America 2012
February 28 - March 2
Las Vegas, Nevada

World Aquatic Veterinary Medical Association

® Joint Aquatic Veterinary Session

Reducing the Risk of Disease

Call for Speakers

As Associate Sponsors of Aquaculture America annual meetings, the AVMA and WAVMA invite aquatic veterinarians and paraveterinary professionals to submit abstracts for 15 or 30 minute presentations on issues or strategies that deal directly with reducing the risk to aquaculture from devastating diseases.

Presentations that address the following are particularly encouraged:

- Pathophysiology and impact of important and emerging diseases affecting aquaculture production, public health and seafood safety
- Biosecurity, surveillance and other strategies & approaches for the prevention, control and eradication of disease
- Legislative and regulatory issues addressing disease outbreaks
- Optimal and judicious use of biologics therapeutic agents in disease outbreaks
- Clinical management of important food and ornamental finfish, crustacean and molluscan diseases

Presentations pertinent to practicing veterinarians and aquaculture producers are particularly encouraged. Should this program be suitable for veterinary Continuing Education, veterinarians attending will receive a veterinary CE certificate of participation.

****** Intent to Present ******

NOTE: Oral presentations for this program will be accepted on a first-come, first-served submission of suitable presentation titles and/or abstracts. Other presentation may be assigned to posters or other sessions.

To ensure inclusion in this Session, speakers intending to present should send the author name/s and presentation title, and indicate the desire for a 15 or 30 minute presentation to:

Dr. A. David Scarfe, Session Coordinator
American Veterinary Medical Association
dscarfe@avma.org
(847) 285-6634

******* Abstract Submission ******* ***Deadline August 1, 2011***
All abstracts must be submitted online through www.WAS.org.

AQUACULTURE AMERICA 2012, AVMA and WAVMA are unable to subsidize registration fees, travel or hotel costs. All presenters are required to pay their own registration, accommodation and travel expenses. AVMA & WAVMA members receive discount registration rates.

May 2011

Clinical Reports

Hikkui Disease in Koi (*Cyprinus carpio*)

Nicholas Saint-Erne, DVM
Phoenix, Arizona 85027

***Abstract*—**Hikkui disease causes skin lesions in nishikigoi (koi), a domesticated variety of the common carp. The disease occurs primarily in Kohaku, Sanke, and Showa (red and white, and red, black and white) color varieties of koi. These color varieties have a significant amount of Hi (red) pigmentation. Ogon, chagoi, karasu and other color varieties lacking red pigmentation in the same pond with affected koi are not affected. The disease typically starts in the red colored areas of the skin, but can spread into other colored skin regions (especially the white area). A variety of possible etiologies have been suggested, but no definitive cause has yet been identified. Fish rarely die from the primary skin lesions, which often heal with skin coloration changes. Topical treatments tend to hasten healing of the skin lesions, but even without treatment they often regress spontaneously. Seasonal recurrences are common.

***Key words*—**koi, nishikigoi, carp, skin lesions, hikkui.

***Introduction*—**This is a skin disease of Nishikigoi fish (koi) that causes epidermal inflammation, hyperplasia and erosion. Originally it was called "Hi Kui Wa-mu" by the Japanese koi breeders because the red color on the fish's skin was eaten away. In Japanese this literally means the "red eating worm." It was shortened to one word: Hikkui, with the double 'k'. Hikui spelled with one 'k' is a different word and means "short" in Japanese!

***Case Description*—**The disease starts as epithelial hyperplasia (Figure 1), especially on red pigmented skin. The skin becomes thickened, sometimes hemorrhagic, and then sloughs off. The skin can become discolored and scarred, and pigmentation can change. Red areas often become white, but white areas can also become pigmented with erythrophores. Lesions may clear spontaneously and recur periodically in the same fish.

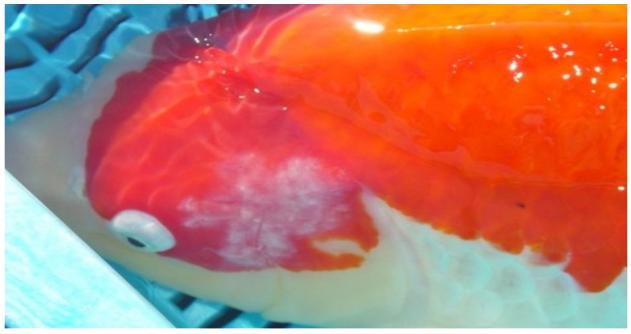


Figure1 - hyperplasia of epithelium on koi operculum.

Signalment & History: Both male and female koi are affected. Lesions rarely occur on belly or low on sides, most common on dorsum and top of head. Hyperplasia is an abnormal increase in the amount of the cells of a tissue causing it to increase in size. It may be due to any number of causes including chronic inflammation, infections or neoplasia. In Hikkui, lesions start with epidermal hyperplasia but progress to skin erosion and ulceration. Unlike the raised lesions of Carp Pox (*CyHV-1),* the Hikkui lesions can be scraped off easily. There is often hemorrhage or erythema associated with the skin lesions.

Differential Diagnoses:

Infectious:

- Parasites - "Red-eating worm"
- Protozoa
- Fungus – dermatophytes or aflatoxins
- Bacteria
- Virus– herpesvirus

Environmental: toxins, sunburn, nutritional, poor water quality, high organic load

Neoplasia: skin cancer, fibrosarcoma

Genetic (Hereditary)-Inbred susceptibility

Clinical Evaluation: Figure 2 shows typical skin lesions and change in coloration (loss of red pigmentation).

Figure 2 - red areas turning white and hemorrhagic sore.

Clinical Test Results: Skin scrape examinations and biopsies sent for histopathology on affected tissues have found no signs of bacteria, fungi, parasites or protozoa. Secondary bacterial or fungal infections could possibly occur on the damaged, necrotic skin of untreated Hikkui wounds. However, bacteria or fungi have not been found on the skin scrapes of these lesions, or grown in bacterial culture from the lesions. Even using special histopathology stains has not found them. Tissue samples submitted for PCR DNA testing for Koi Herpesvirus (Cyprinid Herpesvirus–3) were negative.

Treatment Options: Skin hyperplasia can be wiped off with cotton balls. The skin is then treated with any topical disinfectant. Many medications have been tried with equal results. Antibiotic injections are given to prevent secondary infections. Healed skin lesions often recur.

***Discussion & Conclusions*—**No conclusions yet on this disease! Please send your comments and suggestions to me at: Saint-Erne@Q.com.

Guidelines for Submitting Clinical Reports for Publication in *Aquatic Vet News*

Objectives

The objective of the Clinical Report Section of the WAVMA Quarterly Newsletter (***Aquatic Vet News***) is to provide a forum for Aquatic Veterinarians to publish uncommon or important clinical cases encountered, or to present a new/improved method of diagnosis, treatment or control of a particular anomaly which affects any aquatic animal.

Submission

Clinical Reports of around 1000 words in Microsoft Word (10 point Arial font) should be sent to Dr. Devon Dublin (devdub@yahoo.com) for editing and formatting by the following ***Aquatic Vet News*** submission deadlines: February 15; May 15; August 15; November 15.

Clinical Report should be divided into the following sections:

Title
Author/s and corresponding author's affiliation & contact information
Abstract (and key words)
Introduction
Case Description
Discussion & Conclusions
References

Additional Guidance

Title—10 words or less that succinctly describes the clinical case

Abstract (Summary)—maximum 200 words; should include a description of the condition, diagnosis, treatment, results and conclusion

Key words—up to 8 words that can be used to search all WAVMA Clinical Reports

Introduction—200 words or less; should highlight uncommon or new/improved method diagnostics, treatment, control or resolution.

Case Description—350 words or less; describe species, breed, age, sex, type etc and include subsections describing: *Signalment & History; Differential Diagnoses; Clinical Evaluation; Clinical Test, Results & Rule-outs; Treatment Options & Follow-up and Case Resolution.* If necessary include postmortem findings.

Discussion & Conclusions—approximately 200; interpretation of findings and diagnostics and the relevance of the case; when necessary cite other publications (use 1, 2, etc referring to reference list).

References—Less than 5 *directly relevant* references preferred, numbered in the order that they appear in the text; use standard, abbreviated citations, e.g., Smith AB, et al (2010). Death by Asphyxiation in Snails. *J.Irreprod.Results*, 111(4): 210-220.

Tables, Figures, Graphs and Illustrations—all tables, figures, graphs or illustrations must be simple, clear and have a brief legend description, e.g., Table 1. Comparison of Diagnostic Techniques; JPG, GIF, TIFF or BITMAP formats are preferred.

We look forward to your input to keep WAVMA members the most informed group of veterinarians. Please submit your interesting or unusual case reports to share with other Aquatic Veterinarians. We look forward to hearing from you!

Emerging Issues

New Article: PNW Aquarium Trade.

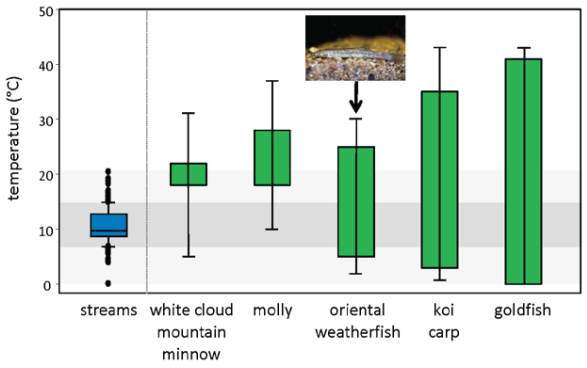
A new article, *The aquarium trade as an invasion pathway in the Pacific Northwest,* is now available (Strecker, A.L., Campbell, P.M. and J. D. Olden. 2011. Fisheries 36:74-85.)

Abstract:

"The aquarium trade moves thousands of species around the globe, and unwanted organisms may be released into freshwaters, with adverse ecological and economic effects. We report on the first investigation of the ornamental pet trade as an invasion pathway in the Pacific Northwest region of the United States, where a moderate climate and a large human population, present ample opportunities for the introduction and establishment of aquarium trade species.

Results from a regional survey of pet stores found that the number of fish (n=400) and plant (n=124) species currently in the aquarium trade is vast. Pet stores import thousands of fish every month, the majority of which (58%) are considered to pose an ecological threat to native ecosystems. Our propagule pressure model suggests that approximately 2,500 fish (maximum ~21,000 individuals) are likely released annually to the Puget Sound region by aquarists, and that water temperatures in many parts of Washington are suitable for establishment of populations.

In conclusion, the aquarium trade may be a significant source of past and future invasions in the Pacific Northwest, and we recommend enhanced public education programs, greater regulation of the aquarium industry, and improved legislation of nonnative species in the ornamental trade." To view the article, go to: http://fish.washington.edu/research/oldenlab/pdf/2011/Fisheries_2011b_Aqua.pdf



Fish Veterinary Society, Spring 2011 Meeting Report
19th and 20th April 2011
Norton House Hotel, Edinburgh, Scotland

Chris Walster, BVMS MVPH MRCVS

As a WAVMA member representing WAVMA, the spring FVS meeting was very informative. The following is a synopsis of presentations. All presentations will go up on the FVS website as PDF's and presentation papers will be published in the FVS' 2011 Fish Veterinary Journal.

Integrated Pest Management – functional feeds and lice control: Chris Wallace, Marine Harvest

Marine Harvest uses "Bio-Mos" (produced by Alltech) as an adjunct to controlling sea lice. It encourages the production of mucus (epidermal and not on the gills) which decreases the ability of juvenile stages to attach to the fish. Studies indicate that it decreases the required frequency of sea lice treatment. It also appears to improve FCR. This effect is thought to be due to improved repair and architecture of intestinal villi. Bio-Mos is a complex sugar. Further information on Bio-Mos is available at www.bio-mos.com/bio-mos/index.htm.

Overall it would seem to have recognisable benefits and the cost suites the farmer. The work presented suggests it is worth using.

Sea-Lice Sensitivity Bioassays – Fact or Fiction: Andrew Grant, Vetaqua (Scotland))

Audience discussion indicated that current sea-lice bioassay was somewhat flawed due to lack of a standard protocol between laboratories. It seems that someone should investigate and take further as currently it would appear that a mistake in sensitivity due to variation in assessment would be costly to the farm. The topic will be discussed on the FVS forum.

Cardiomyopathy syndrome of Atlantic salmon (*Salmo salar L.*,) is caused by a dsRNA virus of the *Totiviridae* family: Pal Nilsen, Pharmaq Oslo

The presentation described the experimental work leading to the conclusion that CMS was caused by this virus. As usual there were some gaps in the evidence but overall it appeared a pretty convincing amount of evidence. For further information on this see the Aquavetmed article of 19th April (www.aquavetmed.info).

Gill damage to Atlantic salmon caused by common jellyfish: Emily Baxter, University College Cork

Main points were that greatest numbers of jellyfish were seen between Oct-Dec and that the severest damage to the gills occurs a couple of days after the bloom event. There might be ways of forecasting as with algal blooms. May be an issue with sessile life stages of jelly

fish attaching to the booms of netpens and the amount of damage caused by jellyfish to fish gills may be more severe than currently suspected. The original full paper can be obtained at: www.ncbi.nlm.nih.gov/pmc/articles/PMC3072396/pdf/pone.0018529.pdf

Biomarkers – a cost effective tool for managing PD: Ralph Bickerdike, Product Development, Biomar & Dave Cockerill, Marine Harvest

This was a report on the use of CPK (creatinine phosphokinase), ALT (alanine aminotransferase) and ASP (aspartate aminotransferase) as an indicator of the muscle damage caused by PD (Pancreas Disease). Essentially it involves monitoring blood levels on a regular basis (every 2-4 weeks and weekly if an outbreak observed). Enzyme levels correlated with levels of muscle damage, peaking at six weeks post infection. Sampling only required a couple of fish per pen and by sampling all pens you get a statistically relevant sample of individual and population. By measuring enzyme levels you can judge when to carry out management procedures, when to feed special diets, decide when best to slaughter etc. Overall the evidence was very convincing that it works and is useful on farms.

Emerging aquatic diseases at home and away: Steve Feist, CEFAS Weymouth

Steve gave an overview of recent emerging diseases globally and the use of disease databases such as the OIE WAHID (www.oie.int) in compiling CEFAS's emerging diseases database. There have been around 250 emerging diseases in the last five years. To see the full data it is best to obtain his presentation off the FVS website. **Note:** the CEFAS website is at: www.cefas.defra.gov.uk

A new live fish movement scheme for England and Wales: Nigel Hewlett, Technical Advisor, Environment Agency Brampton

(www.environment-agency.gov.uk/research/commercial/32866.aspx for information on the Fish Health, Ageing and Species team at Brampton or for more information on fish movements www.defra.gov.uk/aahm)

Nigel provided an overview of the reasons for the changes and what the changes will mean. There will be a permit provided to the supplier based on a risk assessment of the supplier's site. There would be a similar permit for the purchaser and these could run for several years. The aim of the legislation is that rather than a yes/no approach it will be a yes if... i.e. if you wish to keep an "unsuitable" species you may be able to do so if you do the following… Health checks will not be required for each movement and the audience raised concerns that this might limit the ability to educate fisheries managers on health and welfare aspects.

It is unlikely the legislation will come in to force before October at the earliest.

Mycobacteria: Sandra Adams, University of Stirling Institute of Aquaculture

The Institute has been looking at Mycobacteria since 1995. They have had to develop new testing strategies as there are more species than thought and due to the lipid coat it is difficult to design antibodies for ELISAs. Overall the impression is that it is difficult to identify beyond genus. There was discussion of various DNA technologies and Luminex technology (which is similar to a DNA array but uses fluorescent beads) that, although currently expensive do, allows you to get around several of the issues. Another comment was that most of the literature on human infections was probably wrong in species cited due to the difficulties indicated above.

Salmon Vaccination – the role of technical support: Neil Robertson, Novartis Animal Health

The presentation discusses some of the issues and differences between manual and machine vaccination. Main points were accurate placement of needle (one fin length anterior to pelvic on midline) and depth of needle insertion. Various slides were shown of the damage that can be caused by inaccurate placement. This ranged from the generation of adhesions, to areas of melanin infiltration which caused down-grading of the fillet and failure to vaccinate if the vaccine is placed in the hind gut. The presentation slides would be useful for training and demonstrating vaccination technique.

Disease Surveillance: Dave Fraser, Marine Scotland

Dave presented on the development of surveillance in light of 2006/88 and also a generic biosecurity plan (available from ASSG (Association of Scottish Shellfish Growers) website www.assg.org.uk and look under the conference 2010 presentations "biosecurity plans in relation to 2006/88/EC). The generic plan is very simple and applicable to all species.

For more information on the FVS and the presentations at this meeting, go to www.fishvetsociety.org.uk.

Funeral for a Fish

Little Nancy was in the garden filling in a hole when her neighbor peered over the fence. Interested in what the youngster was doing, he asked, "What are you up to there, Nancy?"

"My goldfish died," replied little Nancy tearfully without looking up, "and I've just buried him."

The neighbor laughed and said condescendingly, "That's a really big hole for a goldfish, isn't it?"

Little Nancy patted down the last heap of earth then replied, "That's because he's inside your cat."

Legislative and Regulatory Issues

NEW ZEALAND IMPORT HEALTH STANDARD FOR ORNAMENTAL FISH AND MARINE INVERTEBRATES
Biosecurity New Zealand,
Ministry of Agriculture and Forestry
Wellington, April 21, 2011

This standard is issued under section 22 of the Biosecurity Act 1993 (the Act) and specifies the requirements that must be met to import ornamental fish and marine invertebrates into New Zealand. Importer's responsibilities:

- It is the importer's responsibility to ensure that they are compliant with the current relevant import health standard at the time of importation.
- The costs of the MAF in performing functions relating to the importation of ornamental fish and marine invertebrates shall be recovered in accordance with the Biosecurity Act and any regulations made under that Act. All costs involved with documentation, transport, storage and obtaining a biosecurity authority shall be borne by the importer or agent.
- Where required, the consignment must be accompanied by a permit to export by the legislation of the country of origin and the Convention on the International Trade in Endangered Species (CITES): www.cites.org. The importer is advised to clarify the status of the species in relation to international agreements on their trade, prior to export. Ornamental fish or marine invertebrates arriving in New Zealand without a permit to export may be subject to seizure by the New Zealand Department of Conservation.
- The importer must obtain a permit to import prior to proceeding with importation.
- The importer must notify the supervisor of the transitional facility a minimum of 72 hours before the expected time of arrival of each shipment.

See the standard (http://tinyurl.com/4xel4fg) for additional details concerning:

- Species Eligibility
- Permits
- Documentation accompanying the consignment
- Transport
- Biosecurity authorization
- Quarantine in New Zealand
- Biosecurity Clearance
- Equivalence
- High Risk Species & Risk Management Options
- Approved Species

USFWS Final Rule On Bighead Carp

On December 14, President Obama signed the Asian Carp Prevention and Control Act (Pub. L. 111–307), which amends the Lacey Act (18 U.S.C. 42), by adding the bighead carp (*Hypophthalmichthys nobilis)* to the list of injurious animals in 50 CFR16.13. The listing prohibits the importation of all forms of live bighead carp, including gametes, viable eggs, and hybrids, into the U.S. and prohibits interstate transportation of these between States, the District of Columbia, the Commonwealth of Puerto Rico, or any territory or possession of the U.S., except by permit for zoological, education, medical, or scientific purposes. The rule became effective March 22, 2011. The final rule and supporting documents are available at [*http://www.regulations.gov] D*ocket No. cFWS–R3–FHC–2010–0094. The bighead joins several other carp species already on the list. In October 2002, the U.S. Fish and Wildlife Service received a petition to add bighead, silver carp (*Hypophthalmichthys molitrix*), and black carp (*Mylopharyngodon piceus)* to the list of injurious wildlife. The Service added silver and largescale silver carp to the list in a final rule on July 10, 2007 (72 FR 37459), and added black carp to this list by final rule on October 18, 2007 (72 FR 59019).

Saskatchewan Bans Selling And Owning Invasive Fish

Northern snakeheads *(Channa argus)* are very aggressive and will compete with native fish for food, quickly dominating a lake. Officials say snakeheads also carry a disease that can spread to other freshwater fish, and there's no effective way to get rid of them. Saskatchewan's Environment Ministry is now banning the import, possession and sale of all aquarium fish deemed to be aquatic invasive species, like the northern snakehead**.** Environment Minister Dustin Duncan said there are regulations that deal with other aquatic invasive species, but the regulations historically have not applied to aquarium fish, as most of them are tropical fish that will not survive in Saskatchewan's climate. The ministry is asking the public not to purchase the northern snakehead, which has been found at some pet stores in the province, as well as telling pet stores not to import or sell them. *(Excerpted from the Canadian Press, March 30, 2011)*

US Department of Commerce/National Oceanic & Atmospheric Administration Release National Aquaculture Policies

Washington, DC – The US Department of Commerce and NOAA today released national sustainable marine aquaculture policies to meet the growing demand for healthy seafood, to create jobs in coastal communities, and restore vital ecosystems. Foreign aquaculture accounts for about half of the seafood imported by the U.S., contributing to the $9 billion trade deficit in seafood.

"Our current trade deficit in seafood is approximately $9 billion," Commerce Secretary Gary Locke said. "Encouraging and developing the U.S. aquaculture industry will result in economic growth and create jobs at home, support exports to global markets, and spur new innovations in technology to support the industry."

"Sustainable domestic aquaculture can help us meet the increasing demand for seafood and create jobs in our coastal communities," said Jane Lubchenco, Ph.D., undersecretary of commerce for oceans and atmosphere and NOAA administrator. "Our vision is that domestic aquaculture will provide an additional source of healthy seafood to complement wild fisheries, while supporting healthy ecosystems and coastal economies."

The new aquaculture policies, which reflect the public comments received after draft policies were released on February 9, focus on:

- encouraging and fostering sustainable aquaculture that increases the value of domestic aquaculture production and creates American business, jobs, and trade opportunities;
- making timely management decisions based on the best scientific information available;
- advancing sustainable aquaculture science;
- ensuring aquaculture decisions protect wild species and healthy coastal and ocean ecosystems;
- developing sustainable aquaculture compatible with other uses;
- working with partners domestically and internationally; and,
- promoting a level playing field for U.S. aquaculture businesses engaged in international trade, working to remove foreign trade barriers, and enforcing our rights under U.S. trade agreements.

The domestic aquaculture industry (both freshwater and marine) currently supplies about five percent of the seafood consumed in the U.S. The cultivation of shellfish, such as oysters, clams, and mussels, comprises about two-thirds of U.S. marine aquaculture production. Salmon and shrimp aquaculture contribute about 25 percent and 10 percent, respectively. Current production takes place mainly on land, in ponds, and in states' coastal waters.

"This new focus on helping us develop and expand sustainable aquaculture is welcomed," said Bill Dewey, a shellfish biologist and Shelton, Wash.-based clam farmer of more than 27 years. "When done right, aquaculture can improve the environment, provide jobs and reclaim American dollars that are being spent on imported aquaculture products."

The Commerce and NOAA policies build on priorities of President Obama's National Ocean Policy, including the emphasis on protecting, maintaining and restoring healthy and diverse ecosystems; supporting sustainable uses of the ocean; and increasing scientific understanding and applying that knowledge to make better decisions.

For more information on the NOAA Policies see: http://aquaculture.noaa.gov/

FDA to Step Up Inspections of Imported Products

Washington, DC – The U.S. Food and Drug Administration announced a new strategy to help ensure the safety and quality of imported drugs and food products.

The plan, which calls for coalitions of international regulators and increased data sharing, was created in response to rapidly rising imports of FDA-regulated products and a complex global supply chain. The strategy is outlined in a special report called the Pathway to Global Product Safety and Quality.

"Global production of FDA-regulated goods has exploded over the past 10 years. In addition to an increase in imported finished products, manufacturers increasingly use imported materials and ingredients in their U.S. production facilities, making the distinction between domestic and imported products obsolete," FDA Commissioner Dr. Margaret A. Hamburg said in the news release. "There has been a perfect storm -- more products, more manufacturers, more countries and more access. A dramatic change in strategy must be implemented."

To protect the health of U.S. consumers, the FDA needs to modify the way it conducts business and to act globally, according to the report. The FDA said it's also expanding its food-safety efforts under the FDA Food Safety Modernization Act (FSMA). There will be new inspection mandates, including one to inspect more than 19,000 foreign-food facilities by the year 2016.

"FDA-regulated imports have quadrupled since 2000," Hamburg said. "The FDA and our global regulatory partners recognize this new reality and realize we must work proactively and collaboratively to address the challenges we face."

See http://tinyurl.com/3ue5oto for additional information.

Aquatic Veterinary CEPD

Veterinarians attending these meetings may be awarded veterinary CEPD credit towards annual re-licensure or re-registration, which is required in some countries to practice veterinary medicine. Individuals should check with the organizers to see if CEPD certificates are provided.

Meetings with Caduceus are sponsored by a Veterinary School or Organization.

OIE Conference: Aquatic Animal Health Programmes - their benefits for global food security
June 28-30, 2011
Organized by the World Organization for Animal Health (OIE), Panama City, Panama

Participants are invited to submit peer-reviewed scientific posters. The conference will provide a forum for OIE Members and other participants to exchange the latest information on a science-based approach to the management of aquatic animal health and food safety at the production level. Participants will be able to share valuable experience in the prevention, detection and control of aquatic animal diseases, safeguarding food safety, and related contributions to sustainable management of the aquatic environment.

The objectives of the conference are to:

- raise awareness of the requirements for effective aquatic animal health management, covering all matters under the OIE mandate;
- highlight the contribution of aquatic animal health programmes to improving the productivity of the aquatic animal sector and thereby global food security;
- raise awareness of OIE standards and recommendations on the use of veterinary products in aquatic animals;
- identify practical steps to address any risks arising from aquatic animal production for food safety, public health and the environment;
- raise awareness of the need to improve the education of veterinarians and other aquatic animal health professions on aquatic animal health, including disease surveillance, control and reporting;
- brainstorm on the challenges and the tools needed to reinforce good governance in the aquatic animal production sector;
- provide practical guidance on how OIE Members (particularly developing countries) can mobilise governments and donors with the goal of improving Veterinary Services and other Competent Authorities to meet the OIE standards for competent services and good governance.

The Conference will address:

- analysis of the global aquatic animal health situation;
- the roles and responsibilities of Aquatic Animal Health Services and Veterinary Services, including OIE national Delegates and focal points, in aquatic animal health management;
- the roles and responsibilities of national and international laboratories for disease diagnosis and reporting and related scientific research;
- effective communication amongst all concerned sectors;
- understanding the OIE role and mandate and the relationships between authorities where there is a shared responsibility for aquatic animal health;
- OIE Members' experiences in aquatic animal health management, including the challenges and priorities of developing countries;
- awareness of the OIE standards and recommendations for aquatic animals and practical advice on how to comply with the standards;
- requirements for aquatic animal feed and for the use of veterinary products in aquatic animals;
- the education of veterinarians and aquatic animal health professionals in the public and the private sector on their role and responsibilities;
- improvement of governance of Veterinary Services and Aquatic Animal Health Services using the OIE PVS pathway;
- future needs and priorities to support decision makers, international organisations and donors with the objective of strengthening the governance and management of the aquatic animal production sector especially as this relates to animal heath, food safety at the production level, and relevant contributions to safeguarding the environment.

For More information: http://www.oie.int/eng/A_aquatic/home.htm.

2nd REUNIÓN INTERNACIONAL SOBRE UNA SALUD / ONE HEALTH
June 30, 2011
Quito, Ecuador

Sponsors: FUNDACIÓN PARA LA CONSERVACIÓN DE BIODIVERSIDAD DE ANIMALES ACUÁTICOS Y TERRESTRES DE ECUADOR, GUAYAQUIL, ECUADOR.
UNIVERSIDAD SAN FRANCISCO DE QUITO.
CONSERVAR ECOSISTEMAS SALUDABLES, PARA MANTENER ANIMALES SALUDABLES Y PROTEGER LA SALUD PÚBLICA

Lugar: Auditorio de La Universidad San Francisco de Quito, Campus Cumbayá, Quito, Ecuador.

CONFERENCISTAS:

BARBARA NIKOLAJCZYK, PhD (BOSTON UNIVERSITY), ACACIA ALCIVAR WARREN, DMVZ, MSc, PhD (FUCOBI, BOSTON COLLEGE, EGI), GABRIEL TRUEBA, DVM, MSc, PhD (UNIVERSIDAD SAN FRANCISCO DE QUITO), ING. ANA TELLO (MINISTERIO DEL AMBIENTE, ECUADOR), ING. BIOTECNOLOGA DANIELA ESPINOZA Y DR. PEDRO ANDRADE (FUCOBI), COLABORADORES NACIONALES E INTERNACIONALES DE FUCOBI.

INSCRIPCIONES: DOCENTES / EGRESADOS $20, ESTUDIANTES $10
Nota : Se entregarán Diplomas a los asistentes
Inscripciones: unasaludfucobi@gmail.com
Teléfono: 04 264 7816

1st Australasian Scientific Conference On Aquatic Animal Health
July 5-8, 2011
Pullman Reef Hotel, Cairns, Queensland, Australia

The Australian Fisheries Research Development Corporation, Aquatic Animal Health Subprogram (http://tinyurl.com/2cbmn6q) is pleased to announce the First Australasian Scientific Conference on Aquatic Animal Health to be held in Cairns, Queensland, Australia (http://tinyurl.com/2coroyc) - gateway to the Great Barrier Reef and Daintree rainforest.

The conference provides a forum for presentation of diagnostic, research, management and policy issues encompassing all areas of aquatic animal health and biosecurity. Previously, AAHS has organized national scientific conferences (in 2003, 2005, 2007 and 2009) featuring presentations on aquatic animal health research in Australia and an international aquatic animal health expert as the keynote presenter.

For more information (registration fee will be Aus $330) and accommodation details please contact Joanne Slater, FRDC Aquatic Animal Health Subprogram Coordinator (email: joanne.slater@csiro.au) with an expression of interest indicating whether you plan to attend and/or make a presentation (please indicate topic).

Salmon Disease Workshop
July 11-22, 2011

University of Oregon, Corvallis, OR, USA

This workshop is designed for professionals working in the fish health field and will emphasize recent advances and developments in our understanding of salmonid diseases. The workshop is limited to 20 participants on a first come, first served basis.

General Topics: Viral Diseases, Cell Culture & Viral Diagnosis; Bacterial Diseases; Parasitic Diseases; Disease in Net Pen Culture; Issues in intensive trout culture; Immunology and stress; Molecular Diagnostics; Disease Control and Treatment; Histology & Histopathology; Pharmacology.

Cost of the workshop is $950 plus housing (if desired). For more information and to register please contact Dr. Jerri Bartholomew (541-737-1856; bartholj@science.oregonstate.edu). A website for more information and with links to registration will be posted in the near future.

AVMA Annual Convention
July 16-19, 2011
St. Louis, Missouri

An Aquatic Veterinary Program to beat all odds! See http://www.avma.org/index.cfm/id/37 for the daily schedule. Visit the AVMA and WAVMA aquatic veterinary booths (#2229 & #2231). Attend the WAVMA Annual General Meeting (6:00-10:00 pm Monday, July 18—Hawthorn Room, Renaissance Grand Hotel).

Entertainment that can't be beat:
An exclusive, AVMA-only concert by Plain White T's.
Comedian extraordinaire Jay Mohr and the first-ever "AVMA's Got Talent," where you see (and judge!) the non-clinical talents of your colleagues!
The Exhibit Hall Reception is new this year. Grab some great food and drinks throughout the exhibit hall Sunday evening. AVMF's Night at the Zoo event will raise funds to benefit their mission.

The details that bring it all together:
Robust exhibit hall with hundreds of vendors and a New Product Showcase to see the latest and greatest.
AVMA MapIt! Interactive Map & Directory: available online, in kiosks and for your iPad or smartphone.
World Veterinary Year celebrations – observing 250 years of veterinary medicine!
RFID for easy CE tracking.

Register today at www.avmaconvention.org.

International Aquaculture Biosecurity Conference & Workshop
August 14-17, 2011
Organized by the International Aquatic Veterinary Biosecurity Consortium (WAVMA is a member), Trondheim, Norway

To be held in conjunction with AQUA NOR 2011 (www.nor-fishing.no August 16-19) as a two-day conference and two-day applied, training workshop. Internationally recognized keynote speakers, contributed posters and talks on aquaculture biosecurity that involve practical approaches for the prevention, control, and eradication of disease. The goal of this conference and workshop is to provide expert opinions and tools for implementing internationally acceptable, standardized, practical, economic, and effective biosecurity plans and programs in any type of aquaculture production facility. A call for posters and short talks is forthcoming on the website. For more information see: www.cfsph.iastate.edu/IICAB/meetings/iabc2011.php.

Health and Colony Management of Laboratory Fish
August 15-19, 2011
Mount Desert Island Biological Laboratory , Bar Harbor, Maine, USA

Topics to be discussed will include general system design and water quality management, anatomy and histology of fish, infectious and non-infectious diseases common to all fish, specific diseases of importance to laboratory-maintained zebrafish, and general fish diseases and disease management strategies. The course will consist of lecture, laboratory exercises, with an opportunity to discuss unusual and/or unsolved diagnostic case experiences from their laboratories as problem-solving exercises. The course should be particularly valuable to technical staff, graduate students, postdoctoral fellows, junior faculty and investigators needing skills to monitor the health of a colony of aquatic organisms.

Applications are being accepted for this 1-week educational opportunity for individuals with maintenance, management or research responsibilities in which fish are used as laboratory animals – Deadline June 15, 2011. For more information see www.mdibl.org/courses/Health_and_Colony_Management_of_Laboratory_Fish/182/

AQUA NOR 2011
August 16-19, 2011
Trondheim Spektrum, Norway.

The AQUA NOR trade shows are held biennially in Trondheim, and have attracted 15,000-20,000 visitors from more that 50 nations, and 300 exhibitors representing more than 600 manufacturers and suppliers from all over the world. Exhibitors present current developments in the fields of aquaculture technology, fish feed, fish health, quality assurance, training, funding, fish farmer networks, grading, equipment, storage, processing, packaging, environmental protection and distribution.

AQUA NOR also provides a Forum, organized by the European Aquaculture Society in cooperation with the Nor-Fishing Foundation, SINTEF and CREATE, for science, industry, consumers and policy makers to review developments in the aquaculture sector and to discuss the key issues that affect those developments.

The Forum will have three sessions (each 2 hours long) where presentation of the issues and discussion of the solutions will be the priority and will address one of the critical constraints to the development of aquaculture in Europe – access to sites with high water quality to ensure high quality aquaculture products. By up-scaling production systems an increase in productivity can be obtained for any specific site; but this must be compliant with legislation, with regard to fish welfare, with regard to husbandry and especially with regard to the environmental impacts of increased production systems.
For more information see www.nor-fishing.no.

15TH INTERNATIONAL CONFERENCE ON DISEASES OF FISH AND SHELLFISH
SEPTEMBER 12-16, 2011
Annual Meeting of the European Association of Fish Pathologists, Radisson Blu Resort in Split, Croatia

This is a large conference and is a great forum for exchange of information with other fish health scientists from throughout the world.

From Monday September 12 through Thursday September 15 there will a full scientific program of keynotes, oral presentations, dedicated poster sessions, workshops and roundtables. An EAFP plenary session is also scheduled. The deadline for presentation abstracts is April 8, 2011, and the deadline for early registration rates is May 13, 2011.

An additional histopathology workshop dealing with lymphoid organs, musculoskeletal system and nervous system will be held in conjunction with the EAFP meeting on September 17, 2011, after the close of the main scientific conference. Workshop space is limited to 30 participants. Preference is given to EAFP members who can contribute a case presentation on one of the workshop topics. If you wish to attend please contact Dr. David Bruno (david.bruno@scotland.gsi.gov.uk) before you register and pay your conference fee so he can reserve you a place. The cost will be 35-40 Euros which will go towards the cost of a CD.

For further information about the scientific and social programs, abstract submission, registration, optional workshops and study visits, and the stunning conference venue on the Adriatic Sea, please visit the conference website at http://eafp.org/second-announcement/.

Veterinary Workshop on Fish Regulatory Medicine
September 19 & 20, 2011
Madison, Wisconsin, USA

A free workshop for veterinarians on fish regulatory medicine is scheduled for September 19-20 at the Pyle Center on the University of Wisconsin-Madison campus.

TOPICS: Improve Fish Regulatory Practices
Improve Surveillance Techniques
Improve Interstate Fish Health Regulations

There is no fee, and ten veterinary CE credits will be awarded to veterinarians who attend. Lunch and breaks are included. An agenda will soon be available.

The workshop is funded by the U.S. Department of Agriculture and the Wisconsin Department of Agriculture, Trade and Consumer Protection. The workshop is organized by Dr. Gretchen May and Dr. Myron Kebus.

Please contact me with any questions.
Gretchen May, DVM
Animal Health Veterinarian

DATCP - Division of Animal Health
gretchen.may@wisconsin.gov
Ph: 608-224-4352
fax: 608-224-4894

INTERNATIONAL SYMPOSIUM OF FISH PARASITES
September 26th - 30th, 2011
Hotel Gala, Vina del Mar, Chile

Deadline for abstract submission: June 10th, 2011
For more information see WWW.8ISFP.COM

Aquaculture Europe 2011
October 18-21, 2011
Annual Meeting of the European Aquaculture Society, hosted by The Federation of Greek Maricultures and the Hellenic Centre for Marine Research – Rhodes, Greece.

With a theme of "Mediterranean Aquaculture 2020," this meeting will be the most innovative event of European aquaculture to date, bringing together research institutions, academia and the industry. Sessions will address vital questions affecting the development of Mediterranean aquaculture over the next decade, with reviews of the importance of aquaculture in EU food production; the sustainability of aquaculture feeds and the implementation of selective breeding strategies in aquaculture.

A review of current EU-funded research programmes will highlight their relevance to the current and future production practices. Aquaculture Europe 2011 will establish benchmarks for future research that will lead to a clear foresight of the development dynamics of Mediterranean aquaculture 2020. The conference will include an international trade show, a Farmer's Day, a student workshop and will provide a platform to showcase European initiatives in aquaculture. Call for papers deadline April 15, 2011. Sessions include: Sustainable feeds and feeding management; Reproduction and breeding; Hatchery production; Health management; Welfare management; Novel technologies; New species for aquaculture production (including ornamentals); Aquaculture engineering and technology; Tuna farming; Zebrafish; Aquaculture and the consumer; Escapees; Energy efficiency in aquaculture production; Aquaculture governance, policy and socio-economics; Aquaculture planning; Organic aquaculture; Diverse freshwater aquaculture systems; Alternative aquaculture; Mollusc aquaculture; and an EU Forum. For more information see: www.easonline.org.

8TH SYMPOSIUM ON DISEASES IN ASIAN AQUACULTURE
NOVEMBER 21-25, 2011
Fish Health Section of the Asian Fisheries Society, the College of Fisheries, Mangalore, India & Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar, India.

With the Theme "Fish health for food security" the conference will deliberate on the following tentative issues: Global aquaculture – Past, present and future; Public health and trade impacts; Environmental approaches to disease management; Epidemiology of finfish diseases; Epidemiology of crustacean shellfish diseases; Epidemiology of molluscan shellfish diseases ; Emerging issues and approaches in aquatic animal health management; Biosecurity and aquaculture; Diagnostic development – conventional to molecular; Immunological approaches to disease management; Genomics, proteomics and bioinformatics; Pathogen risk analysis and risk assessment; and Alternatives to antimicrobials. For more information see: www.daa8.org/index.html.

WAVMA is now on Facebook!

Find us on Facebook

Assisted by the WAVMA Student Committee, WAVMA and aquatic veterinary medicine is being actively promoted on Facebook.

Become a WAVMA "friend" and feel free to post information useful for other veterinarians, veterinary students, and inform the public about what aquatic veterinarians do.

Simply go to www.facebook.com and search for "WAVMA"

Aquatic Veterinary Opportunities

FUCOBI Foundation in Guayaquil, Ecuador

I would like to inform about exciting and flexible internship opportunities for students available at the FUCOBI Foundation in Guayaquil, Ecuador (www.fucobi.doc) on issues related to the ONE HEALTH project (2011-2020), which I direct. We are looking for students interested in performing field and laboratory research on conservation of biodiversity of aquatic species and food security, fish and shellfish health, community health, disease diagnosis using genomics and epigenetics tools, and epidemiology and public health. The field sample collection sites include the five coastal provinces and the Galapagos Islands of Ecuador. Interested students please send me an email to fucobi@gmail.com for additional information.

Contact:
Acacia Alcivar-Warren, D.M.V.Z., M.Sc., Ph.D.
President and Senior Scientist
Environmental Genomics, Inc.
6 Sunrise Drive Ste 101
Southborough, MA 01772-1801 USA
Voice 508 344 8106
Email environmentalgenomics.warren@gmail.com
Web www.onehealthgenomics.com

President
Fundacion para la Conservacion de la Biodiversidad Acuatica y Terrestre de Ecuador (FUCOBI)
Ciudadela IETEL, manzana 20 villa 12
Guayaquil, Ecuador
Telefax (503) 4 264 7816
fucobi@gmail.com
www.fucobi.org

Visiting Scholar
Higgins 430, Biology Department
Boston College
140 Commonwealth Avenue
Chestnut Hill, MA 02467-3858
Email acacia.warren@bc.edu
Voice 617 552 1936

Director
International Marine Shrimp Environmental Genomics Initiative: Monitoring Ecosystem, Animal and Public Health (IMSEGI)
ONE HEALTH GENOMICS FOUNDATION
6 Sunrise Drive
Southborough, MA 01772-1801 USA
Voice 508 344 8106
Email acacia@onehealthgenomics.com

Postdoctoral Positions in Clinical Division of Fish Medicine
University of Veterinary Medicine, Vienna, Austria.

Two postdoctoral positions are available, one for 4 years and the second for 2 years (start: July or Sept. 2011) in Division Fish Medicine. The deadline for application is June 30, or until filled. The preferred starting date is September 1, 2011.

The focus of the research projects is directed towards utilizing RNA interference technology to control the Whirling Diseases of Salmonid (first Project for 4 years), and Koi Herpesvirus (KHV) and Spring Viraemia of Carp (SVC) viruses in vitro (second Project for two years).

Applicants interested in this position should have a Doctorate in Veterinary Medicine. Candidates with experience on Gene Silencing will be preferred.

Interested candidates should send structured curriculum vitae, a list of publications, a concise statement of research interests and qualifications, to:

Prof. Dr. Mansour El-Matbouli
Department for Farm Animals and Veterinary Public Health—Fish Medicine and Livestock Management
A-1210 Wien, Veterinärplatz 1
University of Veterinary Medicine
Vienna, Austria
mansour.el-matbouli@vetmeduni.ac.at
Telefon: (0)1/25077-4708
Tel.: +43-1-25077-5151 Fax: 25077-5192
Ziervögel- und Reptilienordination: 25077-5159
http://www.vu-wien.ac.at/i129

Atlantic Veterinary College, Charlottetown, PEI, Canada – Graduate Student (Ph.D.) Position

A doctoral student position is available on a project investigating genetic diversity of infectious salmon anaemia virus (ISAV) (Kibenge *et al.,* 2009, *Virology Journal, 6:88*) and antiviral genes. Candidates should have a BSc or DVM or MSc in virology, cell biology, molecular biology, biochemistry or a related discipline. Prior laboratory experience in cell culture, and cellular and molecular biology techniques, is required.

If interested, please contact:
Dr. Fred Kibenge, Department of Pathology & Microbiology, Atlantic Veterinary College, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI C1A 4P3, Canada. Tel: 902-566-0967 (office) / 902-566-0940 (lab); Fax: 902-566-0851; e-mail: kibenge@upei.ca.

MARINE HARVEST (SCOTLAND) LTD – FINFISH VETERINARIAN

We currently have a vacancy for a Health Specialist at our Freshwater Salmon site at Loch Lochy. The successful applicant will be required to be pro-active in all fish health matters on site and to take appropriate corrective action in the face of any health challenges with the objective of maximizing welfare, survival and performance. The main duties will include the following:

• To provide advice, support and training to farm staff on best practice with regard to the health and welfare of the fish.
• To supervise the use of medicines and support the development of new medicines and health initiatives.
• To provide a monitoring and diagnostic service to the site for rapid detection of health challenges.
• To collate data on fish health and produce regular reports for the Lochs Area Manager and Freshwater Health Manager.
• To support the Freshwater Health Manager in wider projects and visits to other sites.

Candidates should be able to demonstrate a high degree of commitment to the job, be able to work independently as well as being a strong team player, be computer literate, and have previous experience of working in a similar role or have fish health qualifications.

If you are interested in applying for this post, please submit a CV with a supporting letter to: Vicky Ferguson, Human Resources Manager, Marine Harvest (Scotland) Ltd., Business Resource Centre, Blar Mhor Industrial Estate, Fort William, PH33 7PT, UK. For an informal enquiry please email vicky.ferguson@marineharvest.com.

NEW ENGLAND AQUARIUM, BOSTON, USA – AMERICAN LOBSTER AQUACULTURE INTERN (SUMMER 2011)

New England Aquarium, Boston, Massachusetts (USA) is now accepting applications for an American Lobster Aquaculture Intern for the summer 2011. At the New England Aquarium, larval and juvenile lobsters are raised in a small hatchery and then used in experiments, which have focused on growth, nutrition, and disease.

Incumbents must have a desire to learn how to care for hundreds of juvenile lobsters in a small research setting. Daily tasks include observing, recording data, and feeding all lobsters in the research collection, collecting and counting newly hatched larvae, changing filters, and cleaning tanks.

To learn more about how to apply, visit:

http://www.neaq.org/get_involved/volunteering_and_internships/internships/applying_for_an_internship.php.

GEORGIA AQUARIUM, ATLANTA, USA – VETERINARY STUDENT EXTERNSHIP (PRECEPTORSHIP) PROGRAM

The Georgia Aquarium provides veterinary students the unique opportunity to gain experience in the field of aquatic animal medicine at one of the largest aquariums in the world.

Preceptorships/externships lasting a minimum of 4 weeks and a maximum of 8 weeks are available. Preference will be given to 3rd and 4th year students but all may apply. Preceptorships are not available November 20 - January 10 or July 1- July 31.

Work hours are typically 7:30 – 4:30, but subject to change based on the medical needs of the collection. Students should expect to work some weekend days. Low cost housing may be available but should not be counted on. Students should provide their own transportation to and from the aquarium. A current tetanus vaccination and health insurance are required.

Students will spend time working in the commissary, the water quality and diagnostic laboratory, necropsy, quarantine and with clinical cases. Individuals are expected to produce a written case report with an associated PowerPoint presentation during the last week of the preceptorship and will also complete a research or special project. There is an assigned reading list intended to broaden the student's knowledge base in aquatic animal husbandry and clinical care. There are 5 veterinarians on staff, 3 of which are full time clinical positions. Through a partnership with the University of Georgia, College of Veterinary Medicine we have an established aquatic veterinary pathology program as well as a growing clinical partnership with the zoological medicine service.

Applications will be evaluated twice annually. Applications for an externship between January 11 and July 1 are due by March 1 of the preceding year. Applications for an externship between August 1 and Nov 20 are due by November 1 of the preceding year. For example, one wishing to do an externship from March 15 to April 15, 2013 should submit a complete application no later than March 1, 2012. It is the student's responsibility to check that their application packet is complete as incomplete applications will not be considered.

For more information, contact: Dr. Tonya Clauss, DVM, MS (tclauss@georgiaaquarium.org) or Dr. Aimee Berliner, DVM (aberliner@georgiaaquarium.org); Attn: Vet Extern Program, Veterinary Services, Georgia Aquarium, 225 Baker Street, Atlanta, Georgia 30313. Electronic submissions are encouraged.

WASHINGTON STATE UNIVERSITY, USA – COMBINED RESIDENCY/MS TRAINING IN ANATOMIC AQUATIC ANIMAL PATHOLOGY.

Washington State University is offering an anatomic pathology residency/MS training position with an emphasis in Aquatic Animal Pathology. This rigorous three-year program combines anatomic pathology residency training in a fully accredited diagnostic laboratory (http://www.vetmed.wsu.edu/depts_waddl/) with training in biomedical research leading to a MS degree (http://www.vetmed.wsu.edu/depts-vmp/graduate/AnatomicPath.aspx).

Veterinarians completing training are eligible for American College of Veterinary Pathologists (ACVP) certification. The ten-year ACVP board pass rate for WSU trainees is greater than 93%. Training occurs under the guidance of 7 ACVP and one ACLAM board-certified pathologists.

The MS graduate training position will focus on a research project involving rainbow trout, salmon or other significant fresh water or marine fish species native to the Pacific Northwest and important to aquaculture production. The selected graduate student will study under the Ed McLeary Distinguished Professor in Aquatic Animal Health and his collaborators. Projects will be hypothesis directed with an emphasis on infectious disease and/or immunology at the host pathogen interface.

The starting stipend is $35,436/yr, with tuition support and medical benefits. The position would begin in the summer of 2011. Applicants must possess a DVM or equivalent degree. Applications should include veterinary college transcripts, curriculum vitae, a statement of professional goals, and names of three references. Send applications to: James Stanton, Department of Veterinary Microbiology and Pathology, Washington State University, PO Box 647040, Pullman, WA 99164-7040; phone (509)335-3725; e-mail jstanton@vetmed.wsu.edu.

UNIVERSITY OF GHENT, BELGIUM – AQUATIC VETERINARY GRADUATE COLUMNARIS RESEARCH (PHD DEGREE)

Are you interested in captivating scientific research in the area of fish disease? The Faculty of Veterinary Medicine, Department of Morphology, Ghent University has an opening for a PhD research position involving the pathogenesis of columnaris disease in catfish and rainbow trout.

The Department of Morphology is in search for a Master in Biotechnology, Biomedical Sciences, Bioengineering, Biology or Veterinarian for the execution and follow-up of an innovative and intriguing research project on the way that the bacterium *Flavobacterium columnare* causes disease in catfish and rainbow trout. This concerns a research project with a fixed term of up to four years which includes varying research (in vitro research, research with organ perfusion models and experimental infections in fish) within a multidisciplinary team of researchers in the area of aquatic veterinary medicine.

Research will include and involve chemotaxis, adhesion, biofilm formation, quorum sensing, apoptosis and antimicrobial resistance; the ultimate goal is to develop efficient and environmentally friendly measures to combat columnaris disease.

If you are interested in this ground-breaking research, have any questions about this program or the research, or want to apply, please contact Prof/Dr A. Decostere (annemie.decostere@ugent.be). Applicants should send a CV, along with a cover letter explaining their motivation.

ATLANTIC VETERINARY COLLEGE, CHARLOTTETOWN, PEI, CANADA – CERC POST-DOCTORAL RESEARCH SCIENTIST POSITIONS IN AQUATIC EPIDEMIOLOGY

The Atlantic Veterinary College (AVC) at the University of Prince Edward Island (UPEI) is seeking highly-qualified applicants for up to 4 post-doctoral research scientist positions in aquatic epidemiology. Positions will range from 2 to 5 years depending on the individuals' qualifications and experience.

The goal of the CERC program is to make UPEI and Canada the global leader in applied aquatic epidemiology research (with an ecosystem health focus). The successful applicants will join a multi-disciplinary team of epidemiologists, statisticians, finfish, crustacean and mollusc clinicians, ecosystem health and regulatory veterinary medicine specialists whose work focuses on holistic approaches to assist the Canadian and international aquaculture industries improve the productivity, sustainability and health of farmed fish stocks.

A veterinary degree, expertise in epidemiology, and strong quantitative skills will be considered assets, as will experience with fish diseases and aquaculture. However, strong candidates with other relevant backgrounds are encouraged to apply. Individuals must be self-motivated and able to work both independently and as an effective partner in the growing UPEI CERC team.

Salary and benefits will be commensurate with qualifications and experience of the individual. Interested applicants are encouraged to contact either Dr. Ian Gardner (phone: 530-752-6992; e-mail: iagardner@upei.ca) or Dr. Ian Dohoo (phone: 902-566-0640; e-mail: dohoo@upei.ca) for further information about the positions.

Applications should be sent to: Leanne Newson, Administrative Project Manager, Centre for Veterinary Epidemiological Research, Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI C1A4P3 Canada (cver@upei.ca; ph: +1 (902) 6205049, fax: +1 (902) 620-5053).

World Aquatic Veterinary Medical Association

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

2011 MEMBERSHIP FORM

New Application ☐ or Renewal ☐ (check one)

Use this Form for mailing with cheque, or credit card payment information

(Membership Application and Renewals, and on-line credit card payments can also be done through www.WAVMA.org)

Please complete **all mandatory fields marked with*, as accurately as possible.

Contact Information

*Name (First, Middle, Last) _____ *Date _____

Business/Organization Name (if applicable) _____ Position/Title _____

*Mailing Address _____

*City _____, *State/ Province/ Canton/ County (UK) _____

*Zip/Postal Code _____, *Country _____

*Primary Phone (include country code) +_____– business ☐; home ☐; cell/mobile ☐

Secondary Phone (include country code) +_____– business ☐; home ☐; cell/mobile ☐

*Primary e-Mail _____; Secondary e-Mail _____

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

Please Check One Membership Category below and complete all the information required for that category

☐ **Full Member** (a graduated of a Nationally recognized veterinary school that awards a Doctor of Veterinary Medicine, or equivalent, degree) – US$100

☐ **Full Member (New Graduate)** (graduated in the immediate previous 12 months from a recognized veterinary school that awards a Doctor of Veterinary Medicine, or equivalent, degree) – US$50

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

*Year _____; University _____; City _____; Country _____

☐ **Student Member** (currently enrolled in a Nationally recognized veterinary school that awards a Doctor of Veterinary Medicine or equivalent degree, or a graduate veterinarian enrolled in a post-graduate degree program, internship or residency) – US$25

Primary Veterinary Degree (to be, or already, awarded e.g. DVM; VMD; BVMS; DEDV; Dr. vet. med.; MVZ, etc) _____

*Year _____; University _____; City _____; Country _____

☐ **Veterinary Technician/Nurse Member** (must be working under the supervision of a veterinarian) – US$50

*Name of supervising veterinarian _____; Phone _____; e-mail _____

☐ **Affiliate Member** (para-veterinary professional (non-veterinarian) graduate of a nationally recognised university or institution of higher education who supports the Mission and Objectives of the Association) – US$100

*Degree _____; *Year _____; *University _____; *City _____, *Country _____

☐ **Allied Veterinary Organization Member** (legally formed organization or society whose members are predominantly veterinarians) – US$500

*Current total number of members _____; *Number (or %) of members that are *veterinarians* _____;

*Estimated number (or %) of members involved with *aquatic veterinary medicine* (any species or disciplines) _____

Membership Annual Dues Payment Options

(New members joining in November/December will be considered paid through December 31 of the following year)

Check One Payment Option: Please send me an Invoice ☐, accept enclosed ☐ cheque # _____, or ☐ charge the credit card below for the total amount of US$ _____

Please return this form to:

Dr. Nick Saint-Erne (Treasurer)
3845 W. Calle Lejos
Glendale, AZ 85310
e-Mail: Saint-Erne@Q.com

Please charge my: ☐ VISA ☐ MasterCard

Name on Card _____

Card Number _____ Expiry Date: _____(Mo); _____(Yr)

Card Security Code _____ Signature _____

All membership applications or renewals will receive an e-mail confirmation once processed.

Contact Corner

2011 WAVMA Executive Board

President
Dr Julius Tepper (USA)
cypcarpio@aol.com

President Elect
Dr Dušan Palić (USA)
dulep@iastate.edu

Immediate Past President
Dr Fotini Athanassopoulou (Greece)
eathan@vet.uth.gr

Secretary
Dr Chris Walster (UK)
chris.walster@onlinevets.co.uk

Treasurer
Dr Nick Saint-Erne (USA)
saint-erne@q.com

Directors-at-Large

Dr Mohamed Faisal (USA)
faisal@cvm.msu.edu

Dr Devon Dublin (Japan)
devdub@yahoo.com

Past Presidents:
Dr Peter L. Merrill (USA) 2007
Dr Ron Roberts (UK) 2008
Dr Hugh Mitchell (USA) 2009
Dr Fotini Athanassopoulou (Greece) 2010

Parliamentarian
Dr David Scarfe
dscarfe@ameritech.net

Committee Chairs

Aquatic Veterinary Education Committee
Dr Scott Weber
fishdoc@charter.net

Budget and Finance Committee
Dr Dušan Palić
dulep@iastate.edu

Communications Committee
Dr David Scarfe
dscarfe@ameritech.net

Credentialing Committee
Dr Ron Roberts
heronpisces@btinternet.com

Ethics and Governance Committee
Dr Peter Merrill
wetvet@comcast.net

Meetings Committee
Dr Julius Tepper
cypcarpio@aol.com

Scholarship Committee
Dr David Scarfe
dscarfe@ameritech.net

Student Committee
Kirstin Kamps
kkamps@westernu.edu

The ideas presented in this publication express the views and opinions of the authors, may not reflect the view of WAVMA, and should not be implied as WAVMA recommendations or endorsements unless explicitly stated. Information related to the practice of veterinary medicine should only be used within an established valid Veterinarian-Patient-Client Relationship.

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 promote our members, and the aquatic species and 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.**

Aquatic Vet News

Instructions for Authors and Contributors

Do you want to make an impact and a contribution to aquatic veterinary medicine? If so, consider becoming a regular or periodic contributor to the quarterly ***Aquatic Vet News***.

Help make the ***Aquatic Vet News*** the source for pertinent and important news. If you would like to be an Associate Editor or have material published in AVN, contact Nick Saint-Erne (Saint-Erne@Q.com).

We particularly invite contributions for (and Associate Editors to assist with) the following regular columns:

Aquatic Vet Q&A
Short description of a problem and solution to an issue – if you don't have the solution, ask the questions and let readers submit solutions for the next issue.

Clinical Cases
Clear description of a distinct clinical case or situation and how those were resolved.

Book Reviews
Brief review of a published book, including an overview and critique and where to obtain the book.

Legislative & Regulatory Issues
Description of legislation or regulations with information on how to access further details.

Externships, Internships & Residencies
Description with specific contact information for veterinary student externships and post-graduate internships or residencies at private practices, institutions, universities or organizations.

Meetings & CEPD Opportunities
Description of upcoming aquatic veterinary educational meetings noting the meeting title, dates, location, and contact person or website.

Jobs Available
Description of available full or part-time employment for aquatic veterinarians.