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Aquatic Vet News

World Aquatic Veterinary
Medical Association

Volume 4; Number 4

4th Quarter 2010

WAVMA ELECTION RESULTS!!

I am pleased to announce the results of the election for 2011 WAVMA Officers and Directors-at-Large. Please join me in congratulating the following individuals who will serve as your Executive Board, beginning January 1, 2011:

Dr. Julius Tepper (2011 President)

Dr. Dušan Palić (President-Elect)

Dr. Fotini [Effie] Athanassopoulou
(Past-President)

Dr. Christopher I. Walster (Secretary)

Dr. Nicholas Saint-Erne (Treasurer)

Dr. Mohamed Faisal (Dir.-at-Large)

Dr. Devon Dublin (Director-at-Large)

**CONGRATULATIONS TO ALL OF
THE NEWLY ELECTED OFFICERS !**

Submitted by **Dr. David Scarfe**
Executive Board Parliamentarian
dscarfe@ameritech.net



2011 President Julius Tepper corrals some koi.

2011 Treasurer Nick Saint-Erne herding turtles.



Contributors to this issue
of *Aquatic Vet News*:

Erdem Danyer

David Scarfe

Chris Walster

Julius Tepper

Richmond Loh

Kirstin Kamps

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Editor's Note

Another four issues of the **Aquatic Vet News** are now completed. This year has gone by much too quickly. It seems like it was only just beginning not too long past. As winter is upon us in the Northern Hemisphere, summer is coming to the South. Seasons change, and this newsletter is changing too. Next issue will be the first in Volume 5, and we would like to make the newsletter even bigger and better!

Each Volume, we have tried to improve the format and the content of the newsletter. We have received contributions from veterinarians all around the world. In order to make this a truly Worldwide organization, we need to continue to get feedback from members everywhere.

Please plan on making a contribution to the newsletter for the next volume: an article, a case report, an update on legislative activities in your country affecting aquatic veterinary medicine, or even a funny story about you treating one of your aquatic patients. We have had good articles this past year on all of those topics. We appreciate the efforts of all our members who have helped with putting this newsletter together, especially the members of the Communications Committee.

Send in your material for the next newsletter by February 15, 2010. The first newsletter of Volume 5 (2011) will be out in March, 2011. Hope to see your contributions in that issue!

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

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Aquatic Veterinary News

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Executive Reports

President-Elect's Report

The WAVMA 2011 Executive Board

The Executive Board for 2011 will be composed of some seasoned members, some of whom have served before in other roles, as well as some members who are new to the job of directing our organization. As I assume the position of President, I, **Dr. Julius Tepper**, bring to the Board my experience in the workings of all the WAVMA committees. I also will now have the opportunity to help guide my vision of what our organization can achieve this year. To help me, I am pleased to have at my side **Dr. Fotini [Effie] Athanassopoulou** in the position of Past-President. I got the chance to have worked with Effie all last year as head of the Meetings Committee in setting up our Annual General Meeting and Conference in Athens, Greece. On attending, it was an added pleasure to continue to work with her there. It was also a chance to meet socially and to appreciate her warmth and humor, in introducing us all to her wonderful homeland.

It is also fortunate that **Dr. Dušan Palić**, who has served since our formation as our Treasurer, will continue now on the Board as our President-Elect. Over the past 4 years, Dusan and I have been involved in many discussions, over many hours, helping to structure and guide WAVMA functioning. He brings his academic credentials, his work ethic and his common sense approach to problem solving to the table with him. I am pleased to say we both agree on many of the issues we have tackled together and I look forward to his help and support in the coming year.

Dr. Christopher I. Walster will continue on the Board as our Secretary in 2011. Chris brings his experience of having been on the Board with Dusan and myself since our formation, and also as a member of the British-based Fish Veterinary Society before that. He is well versed in aquatic veterinary matters from his side of the pond (Europe), and has always had a skilled hand at producing very well-written communications for us. In working together these past years, Chris and I seem to have come to agree on the course and direction for the future of our association. I know I can count on his support and never-ending energy in the role he continues.

I think everyone would agree that one of the most valued and best managed services of our organization is the *Aquatic Vet News* published quarterly and available on our website. The success of this newsletter is to a great degree due to the work of our editor, **Dr. Nicholas Saint-Erne**. I had a chance to meet and spend time with Nick this summer at our conference in Greece. It was a great

opportunity to get to know Nick on a more personal level. I look forward to working with him as our new Treasurer and am sure he will be as efficient in his new capacity as he has been with the AVN.

Dr. Mohamed Faisal, one of the new members of the Executive Board filling the role of Director-at-Large, is a founding member of WAVMA. It was not until our conference this summer that I got the opportunity to speak with him for the first time. He is impressive not only for his knowledge, but for his warmth and positivity. My wife Terry and I arranged a dinner with Mohamed, a chance to talk about our respective lives. At an outdoor restaurant, in the early evening, in the Plaka district of ancient Athens, it was one of the highlights of our time in Greece.

Dr. Devon Dublin, another new member serving on the Executive Board as a Director-at-Large next year, has been an active member of the Communications Committee. Devon hails from South America, but is now situated in Japan. I had an opportunity to catch up with him via Skype one early morning for me, late evening for him (NY to Japan). He echoed a sentiment heard often that the way forward for WAVMA is to focus on what the membership wants.

Thus stands a very motivated and capable new Executive Board. I look forward to working with this new Board in 2011 to build on the great work that has already been done.

Dr Julius Tepper (USA)

President-Elect

cypcarpio@aol.com

WAVMA New Members

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

Full Members:

David Kestenman (USA)

Brian Vitelli (USA)

Mikyeong Ruy (S. Korea)

Gail Hansen (USA)

Student Members:

Amanda Borchardt (Canada)

Secretary's Report

2010 was a good year for WAVMA. We gained many new members, had a very successful annual conference in Athens, established a very active student committee, and added a presence on Facebook. WAVMA members also made provisions for student scholarships, developed excellent information exchange through the members listserv (over 60 topics), responded to several consultations—including one initiated by the Canadian Department of Fisheries and Ocean, as well as the development of further projects of benefit to WAVMA members, such as the initiation of collaboration with the AVMA Aquatic Veterinary Medicine Committee. Collaboration with the AVMA AqVMC will benefit both organisations by decreasing the cost of displaying educational booths at veterinary meetings through shared costs, and help to further develop the aquavetmed.info website and newsletter, with further initiatives in the pipeline. So what's happening in 2011?

The new WAVMA.org website will be up and running, which will allow you to pay member dues, update your details, sign up to various newsletters (not necessarily WAVMA run), find listings for aquatic veterinary medicine education, greater interaction between members and will act as a resource for those starting out in aquatic veterinary medicine (useful websites, courses, textbooks to buy), as well as information useful to those of us a bit longer in the tooth (job vacancies, CEPD, legislation).

Another exciting development will be web-based CEPD, allowing members to participate in continuing education given by experts, live and interactive or at their own convenience, using their computer. Of course the success of all this depends on who contributes to and helps build up these resources. It can only be achieved by input from WAVMA's members and in all honesty, cannot be achieved by a couple of people alone. So please contribute to the development of your chosen field. Contact me or any of the Board members if you have ideas or content you would like to see included. One idea which recently came from the Student Committee was the setting up of mentorship programs at the various veterinary schools with veterinarians working with student members. This is a scheme with great potential to develop aquatic veterinary medicine.

Meetings planned for next year include a day of lectures at Aquaculture America in New Orleans, a meeting during AVMA Convention and the annual conference in South Africa during the World Veterinary Congress in October (the WAVMA website for this should be up during December but start thinking if you would like to present now). As well as a lecture strand at the WVC, we are also organising a two-day workshop on aquaculture biosecurity that will include lectures, desktop exercises and practical sessions at local aquaculture farms. WAVMA has been asked to present at several other meetings around the

world including the 12th Aquaculture Insurance and Risk Management Conference (<http://aquaculture-conference-2011.aquacultureinsurance.com>).

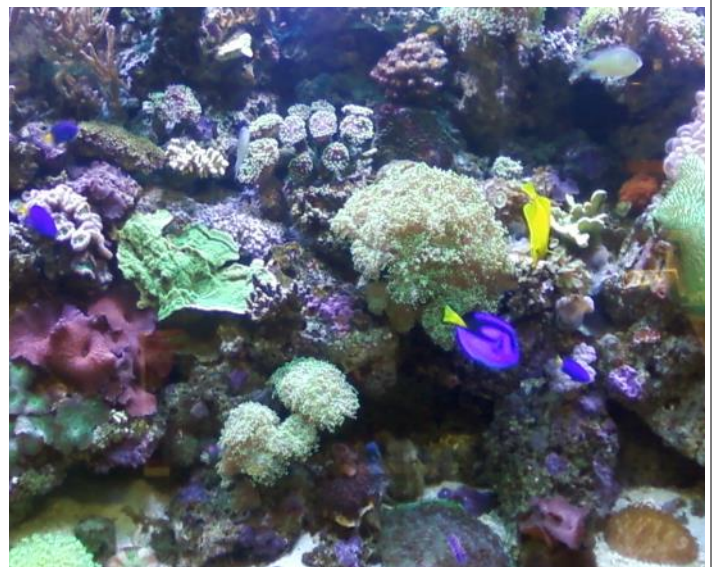
WAVMA is also a partner in the I-ABC (www.IABConference.org) which will hold the second aquaculture biosecurity conference in Norway during August in conjunction with AquaNor. This conference will also have a two day workshop on aquaculture biosecurity. In connection with this, 2011 should see the publication of a second Aquaculture Biosecurity textbook to which WAVMA members will have contributed significantly, as well as the publication of a practical manual of aquaculture biosecurity, both of which will have member discounts available.

2011 is looking to be very busy with the above and the culmination of several projects that have been in development for a few years. All these activities will strengthen WAVMA and provide excellent benefits for membership. WAVMA is fulfilling its Mission Statement (see www.wavma.org) and providing benefits for its members but it cannot exist without your continued support. I hope 2011 will be as successful as 2010 was for WAVMA. I look forward to welcoming and meeting many more members.

Chris Walster BVMS MVPH MRCVS

WAVMA Secretary

chris.walster@onlinevets.co.uk



Marine Aquarium photo by Nick Saint-Erne

WAVMA Committee Reports

Meetings Committee Report

The Meetings Committee has been actively planning for 2011, with 3 exciting venues in which WAVMA hopes to participate. To facilitate our presence at these meetings, I am pleased to announce the creation and partial funding of a joint AVMA-WAVMA Promotion and Outreach Organizing Committee. Besides other projects, this will allow us to coordinate the AVMA and WAVMA booth activities to share resources (booth storage, shipping, staffing, logistics and costs) and to expand our presence at more meetings in the future.

Our first meeting will be Aquaculture America, which will be held in New Orleans, Louisiana from February 28 to March 3, 2011. WAVMA is an Associated Sponsor for the annual Aquaculture America Meetings and other similar meetings throughout the world organized by the World Aquaculture Association (WAS). Sponsorship provides booth space and meeting rooms at these meetings and the opportunity for WAVMA to sponsor, organize and coordinate aquatic veterinary sessions. Being an Associate Sponsor does not require a financial contribution to WAS or the meetings and provides a discounted registration for WAVMA members attending.

Next will be the AVMA Annual Convention, being held this year in St. Louis, MO. Although the precise dates have yet to be announced, it is usually held each year in mid-July. It will be held at the America's Center. The city offers shopping, international dining, live theater, a symphony, and a diverse mix of historic sites, sports, restaurants, and cultural venues. It is also a transportation hub. Downtown St. Louis has undergone a revitalization and restoration project completed in 2009. As a recognized veterinary association, WAVMA receives complementary meeting rooms and booth space.

In keeping with our desire to present our organization as a truly international one, we will also be present at the World Veterinary Association's WORLD VETERINARY CONGRESS 2011, to be held in Cape Town, South Africa from October 10-14. This prestigious event will welcome veterinarians, para-professionals, other health-care professionals and their families from Africa and around the world to South Africa's premier tourist destination city. 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. The focus will be on food production, safety



Dr. Tepper checking the water quality of a koi pond.

and security as well as disease control in communities served by the veterinary profession. The continuing professional development needs of veterinary clinicians will also be comprehensively catered to. This will be the most extensive veterinary scientific showcase ever offered in Africa. World Veterinary Congress 2011 will be held at the world-class Cape Town International Convention Centre, nestled at the foot of Table Mountain, with day trips in and around the breathtaking Cape Peninsula, flanked by the frigid Atlantic Ocean on the west and warm Indian Ocean on the east, as well as to world-renowned vineyards.

These three meetings will give our members a chance to meet with colleagues socially from around the world, as well as attending some very progressive continuing education talks. From my planning point-of-view, I would be most interested in hearing from you, the membership. Feel free to contact me, especially if you are planning on attending any (or all!) of these meetings. Your participation in the program or at the booth will be greatly appreciated. I can be reached at cypcarpio@aol.com.

Julius Tepper
Meetings Committee Chair
cypcarpio@aol.com

Student Committee Report

Greetings from the Student Committee!

This committee was officially formed in September of this year with the objective of serving our student members by facilitating networking among veterinary teaching institutions and to create a mentorship program for veterinary students interested in pursuing careers in aquatic medicine.

Our first act was creating the WAVMA student Listserv [WAVMA Student-L@mailhost.wavma.org](mailto:WAVMA_Student-L@mailhost.wavma.org)

The Listserv provides student members a place to have conversations regarding educational opportunities and to ask pertinent questions that they might not feel comfortable putting out to the member Listserv.

After the Listserv was put in place, we offered our assistance to the Communications Committee to create the WAVMA Facebook Fan page. This is a public forum intended to share information about upcoming aquatic conferences, facilitate discussion on important topics in the aquatic medicine field and to educate members of the public about the many roles that aquatic veterinarians perform. The student committee is responsible for maintaining the site and posting of content.

Currently we have been providing discussion topics and relevant news articles. Please stop by to see the page and contribute to some of the discussions. For those not familiar with Facebook, a quick Google search for "WAVMA Facebook" should provide you with a link to the site. You can easily set up an account by clicking on the green "sign up" button on the left near the top of the page.

We would like to start doing monthly features on aquatic veterinarians sharing their educational background and current job duties. If anyone is interested in being featured or would like events from their universities or businesses posted on the Facebook Page, please contact the student committee at WAVMA_Student_Cmte@mailhost.wavma.org

In the future this space will be reserved for publishing articles from our student members. The student committee will accept submissions for each newsletter by February 5, May 5, August 5 and November 5th. Topics can include summer courses, training programs, current research, case studies or really anything you want to share that is relevant to our objectives. It's a great way to get your name out there and it looks good on your CV.

Two of our current goals are identifying a student contact at each veterinary school who can share WAVMA updates with their student body and drafting a mentorship program for WAVMA student members to assist them in fostering their careers in aquatic medicine.

We welcome any WAVMA student members or academic veterinarians to join the committee. If you are interested in assisting with any of these goals or if you have any questions, please feel free to contact the committee chair, Kirstin Kamps kkamps@westernu.edu or the entire student committee at:

WAVMA_Student_Cmte@mailhost.wavma.org

Kirstin Kamps

DVM Class of 2011

Western University of Health Sciences

kkamps@westernu.edu



Kirstin Kamps



WAVMA Student Member **Katharine Holder** performing surgery on a striped bass at the AquaVet Program in 2008.

Screen shot of the new WAVMA Student Committee Facebook Page, developed by Kirstin Kamps.

The screenshot shows the Facebook interface for the World Aquatic Veterinary Medical Association (WAVMA) Student Committee. The page header includes the Facebook logo, a search bar, and navigation links for Home, Profile, and Account. The main content area features the WAVMA logo and a post from the association. The post text reads: "World Aquatic Veterinary Medical Association (WAVMA) How can we encourage people who keep fish as a hobby to practice quarantine? *last Sunday*". Below the text are tabs for Wall, Info, Photos, Discussions, Events, and Links. A text input field with the placeholder "Write something..." and a "Share" button are visible. The post content includes a photo of a fish and a link to a news article: "Anglers see red over fish disease and health of Myall Lakes - Local News - News - General - Newcastle! www.theherald.com.au". The article text states: "Anglers suspect red spot disease has returned to the Myall Lakes, triggering renewed concerns about the estuary system's health." The post is dated "20 hours ago" and includes options for Comment, Like, Share, and Flag. The right sidebar contains advertisements, including one for "小学校英語指導者資格なら" (Elementary School English Teacher Qualification) and another for "雀ゲー" (Bird Game). The bottom right corner has a "Chat" button.

Communications Committee Report

The Communications Committee was established in January 2008 to foster communications within WAVMA membership, and with others involved with aquatic veterinary medicine.

The Committee is charged to assist in the development and maintenance of: The Association's website; Listservs and other electronic communications mechanisms for members (Facebook); An Association newsletter (*Aquatic Vet News*); Any other forms of communication that would benefit members and the Association; Contact lists of potential sponsors, news and press sources and veterinary schools around the world for WAVMA's use.

The Committee will consist of at least three Full members (one of which will be the WAVMA Secretary) serving 2-year terms. Committee Membership is open to any Full or Student Member in good standing.

The Communications Committee is a vital link in our organization. We need input from all WAVMA members, and we especially need content contributions for

the newsletters. If you would like to join the committee, or help with the newsletter, please contact one of the committee members. It would be helpful to have members from different parts of the world contribute information from their areas.

Also, it is time to select a new Chair and Vice-chair for the Communications Committee, as the current term ends December 31.

Please consider joining the Communications Committee and signing up to assist with the website, or the newsletter, or any other committee activity.

Nick Saint-Erne, DVM - 2010 Chair

David Scarfe, PhD, DVM, MRSSAf

Chris Walster BVMS MVPH MRCVS

Devon Dublin, DVMZ

Krystan Grant, DVM

Scholarship Committee Report

WAVMA Scholarship Recipient Letter

With support from the John Pitts scholarship funds we were able to attend the July 2010 WAVMA International Aquatic Veterinary Medical Conference in Athens, Greece. At our University [Istanbul University, Faculty of Veterinary Medicine] in Turkey we have only 45 minutes of instruction in fish disease and it is only in one term each year. It doesn't have any hands-on practice, just theory. In fisheries faculties, fisheries engineers learn more than us. When we try to talk about a treatment with a fisheries engineer, their idea is "why do you try to treat sick fish, there are many more, so just flush them in the toilet and buy another in pet fish store." We understand them, but the aim of our veterinary education is to do best for the welfare of the animal; their aim is to do what is most economical.

In the WAVMA Conference we learned that someone can take his/her goldfish for an operation, and there are alternatives to euthanizing fish rather than flushing them down the toilet. At home, we have met some discus club members and they are also concerned about this situation. They say they don't know anyone who knows more than us about fish diseases and we now can believe that after seeing what WAVMA members do.

When we first met the Conference organizers we were told how important interaction and communication with other aquatic veterinarians was. We tried to connect with all the Conference delegates. We now know aquatic veterinarians in Holland, England, USA, Tanzania, Greece... and they have contacts all over the world. This is an amazing opportunity for us. When we were leaving, we were invited to "kill us with your questions", and we will.

Now we are in a stronger position to start to study how to help develop aquaculture in Turkey. We can try new techniques, new drugs ...maybe we will do surgery on fishes. We know that we have a long way to go with the fisheries industry, too. We hope our new insights, research and projects will have meaning for the fisheries industry. It will be great for our country because we can see that in the next thirty years, it looks like we have to supply our protein from the oceans around the world. Turkey has ~820km shoreline and we have to care for the environment, public health and economy. Veterinarians have an important role in all.

From this conference, we learned what responsibilities veterinarians have in public health and it will help us a lot. On the other side, we had chance to learn about Greek history and culture. We had really good, funny times with the conference participants.

Thank you, and all the Conference participants for the support and opening our eyes to different sides of veterinary medicine. It is comforting to know that we now have lots of experienced, funny, qualified and intellectual friends are all over the world. They are ready to help us when we want.

Kind regards,

Erdem Danyer (DVM 2010) & **Işıl Aytemiz** (DVM 2011)
Istanbul University, Faculty of Veterinary Medicine

Submitted by:

David Scarfe, PhD, DVM, MRSSAF
WAVMA Scholarship Committee Chair

dscarfe@ameritech.net

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ListServ Letters

QUESTION:

Sent: Wednesday, November 03, 2010 2:43 AM

To: WAVMA_Members-L@mailhost.wavma.org

Subject: Artificial spawning - Koi

Dear WAVMA,

It's spring time for us down in Australia and I've had a play around with artificial spawning of koi. I found that Ovaprim is probably the best induction hormone (ready for stripping ~24 hours after injecting) and milt extended in Ringer's solution buffered to pH 8.5 works well for maximum percentage and time for sperm motility.

Just wondering if anyone has had any experience/knowledge with how the eggs and milt can be preserved for later use.

Dr Richmond Loh

BSc BVMS MPhil (*Vet Path*) MACVSc (*Aquatics & Pathobiology*) CCAS DipPM CMAVA

Veterinarian / Adjunct Lecturer Murdoch University

The Fish Vet, Perth, Western Australia.

<http://www.thefishvet.com.au>

COMMENTS:

I used Ovaprim for the first time this year (previously used CPE) and it worked great – too well in fact, as most of the koi spawned before I was ready for them! I had some large koi (70-80 cm; 6-8 kg) to spawn, and only gave them 0.5 mL Ovaprim EACH, which is slightly below the dosage range of 0.1- 0.5 mL/kg, and was going to give them a second dose in 12 hours, but they spawned before I could give them the second dose! I think it is as effective overall as CPE, and now plan on using it in one dose.

Here is information on artificial spawning induction from the article "Diagnostic Techniques and Treatments for Internal Disorders of Koi (*Cyprinus carpio*)" (Saint-Erne) Veterinary Clinics of North America: Exotic Animal Practice (Vet Clin Exot Anim 13 (2010) 333–347):

"Ovulation can also be induced by injections of carp pituitary extract (2–5 mg/kg intramuscularly, repeat in 9–12 hours), human chorionic gonadotropin (20–30 IU/kg intramuscularly, given twice, 6 hours apart), or Ovaprim (salmon gonadotropin releasing hormone analog + domperidone). Ovaprim is dosed at 0.1–0.5 mL/kg of body weight, given intramuscularly or intracoelomically. Environment and temperature also play a significant role in the reproductive process, and may affect dose and timing. Ovaprim is effective in fish that are within or near their natural spawning season. Ovulation may occur in as little as 4 hours post treatment, so fish should be monitored accordingly."

Here is some information on koi egg and sperm

preservation from *Advanced Koi Care* book (Saint-Erne):

"The expressed eggs can be stored for up to 8 hours at 66-70°F / 19-21°C prior to being fertilized. Expressed milt can be stored for 8-10 hours at 66-70°F / 19-21°C or for 24 hours if refrigerated at 39-43°F / 4-6°C."

Be sure to not let water get in with the eggs or sperm during the stripping process in order to prevent their activation before fertilization.

Nick Saint-Erne, DVM

Technical Services Veterinarian
Aquatics Category

~~~~~

Here is a source of further information from the Freedom of Information Summary generated for Ovaprim for Indexing. There is a summary of the Expert Panel Report and a reference list.

<http://www.fda.gov/AnimalVeterinary/DevelopmentApprovalProcess/MinorUseMinorSpecies/ucm125475.htm>

There is also a lot of great spawning information at the Tropical Aquaculture Lab website:

[http://tal.ifas.ufl.edu/publications.htm#Induced\\_Spawning](http://tal.ifas.ufl.edu/publications.htm#Induced_Spawning)

More info on general topics and specific applications:

<http://www.syndel.com/Spawning-Information-Documents-W18C20.aspx>

I'll look at our references to see if there is anything more for cryopreservation of koi eggs/milt.

### Jim Brackett, DVM

President

Aquatic Life Sciences Group

Western Chemical/Syndel

250 752 5256

~~~~~

When I've used it at 0.5 ml/kg in fish that are ready to spawn, one dose does the job! Great drug!!

Here's the package insert:

http://www.wchemical.com/Assets/file/Ovaprim_insert%20USA_%20Mar_03_18_09.pdf

Helen E. Roberts, DVM

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Literature Review

Effects of anesthesia and surgery on serial blood gas values and lactate concentrations in yellow perch (*Perca flavescens*), walleye pike (*Sander vitreus*), and koi (*Cyprinus carpio*).

Hanley CS, Clyde VL, Wallace RS, Paul-Murphy J, Paterson TA, Keuler NS & Sladky KK (2010). *JAVMA*, 236.10: 1104-1108.

Abstract

Objective—To evaluate serial blood gas values and lactate concentrations in 3 fish species undergoing surgery and to compare blood lactate concentrations between fish that survived and those that died during the short-term postoperative period.

Design—Prospective cohort study.

Animals—10 yellow perch, 5 walleye pike, and 8 koi.

Procedures—Blood samples were collected from each fish at 3 time points: before anesthesia, during anesthesia, and immediately after surgery. Blood gas values and blood lactate concentrations were measured. Fish were monitored for 2 weeks postoperatively.

Results—All walleye and koi survived, but 2 perch died. Blood pH significantly decreased in perch from before to during anesthesia, but increased back to preanesthesia baseline values after surgery. Blood PCO₂ decreased significantly in perch from before anesthesia to immediately after surgery, and also from during anesthesia to immediately after surgery, whereas blood PO₂ decreased significantly in koi from before to during anesthesia. Blood PO₂ increased significantly in both perch and koi from before to during anesthesia, and also in koi from before anesthesia to immediately after surgery. For all 3 species, blood lactate concentrations increased significantly from before anesthesia to immediately after surgery. Blood lactate concentration (mean ± SD) immediately after surgery for the 8 surviving perch was 6.06 ± 1.47 mmol/L, which was significantly lower than blood lactate concentrations in the 2 nonsurviving perch (10.58 and 10.72 mmol/L).

Conclusions and Clinical Relevance—High blood lactate concentrations following surgery in fish may be predictive of a poor short-term postoperative survival rate.

Heart and Skeletal Muscle Inflammation of Farmed Salmon Is Associated with Infection with a Novel Reovirus.

Palacios G, et al. (2010). *PLoS ONE*, 5(7):e11487. [The full paper is downloadable from <http://tinyurl.com/27rgjwb>.]

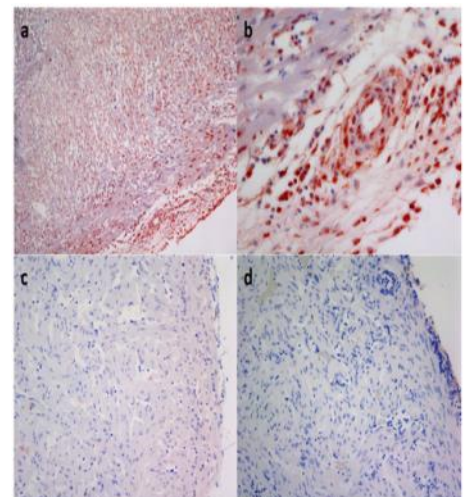
Abstract

Atlantic salmon (*Salmo salar* L.) mariculture has been associated with epidemics of infectious diseases that threaten not only local production, but also wild fish coming into close proximity to marine pens and fish escaping from them. Heart and skeletal muscle inflammation (HSMI) is a frequently fatal disease of farmed Atlantic salmon. First recognized in one farm in Norway in 1999, HSMI was subsequently implicated in outbreaks in other farms in Norway and the UK.

Although pathology and disease transmission studies indicated an infectious basis, efforts to identify an agent were unsuccessful. Here we provide evidence that HSMI is associated with infection with piscine reovirus (PRV). PRV is a novel reovirus identified by unbiased high throughput DNA sequencing and a bioinformatics program focused on nucleotide frequency as well as sequence alignment and motif analyses.

Formal implication of PRV in HSMI will require isolation in cell culture and fulfillment of Koch's postulates, or prevention or modification of disease through use of specific drugs or vaccines. Nonetheless, as our data indicate that a causal relationship is plausible, measures must be taken to control PRV not only because it threatens domestic salmon production but also due to the potential for transmission to wild salmon.

In situ hybridization was performed using locked nucleic acid (LNA) probes targeting the L2 segment of the Piscine reovirus. Sections were counterstained with Meyer's hematoxylin solution. (a) Heart from HSMI-infected fish (10×); (b) heart from HSMI-infected fish (40×); (c) heart from non-infected fish (40×); (d) heart from a fish infected with salmon pancreas disease virus.



Colleague's Connection

Aquatic Animal Diagnostics at the OSU Veterinary Diagnostic Laboratory

Dr. Jerry Heidel, Director, OSU, VDL

(Adapted from the Vet Gazette, e-Newsletter,
September 28, 2010)

Veterinary Diagnostic Laboratory (VDL) team members are usually laboratory-bound, conducting diagnostic tests and reporting those results all within the confines of CVM facilities. But one of our diagnosticians is not restricted to the laboratory and is able to work in the field examining a select group of animals, diagnosing and treating their diseases, and offering advice to their caretakers.

Dr. Tim Miller-Morgan, Oregon Sea Grant Extension Veterinarian and faculty member of the College of Veterinary Medicine, is the Section Head of the VDL Aquatic Diagnostic Service. Dr. Miller-Morgan, the first CVM faculty to be permanently based at the Hatfield Marine Science Center in Newport, OR, focuses his attention on the health issues of aquatic animals. His patients include fish and invertebrates from the ornamental fish industries, public and private aquariums, and university research facilities.

Dr. Miller-Morgan's visits to fish holding, production, and display facilities include health assessments of the animals as well as review of facility management and biosecurity programs. Clinical examinations and basic field diagnostics (gill and fin clip preparations, skin scrapes, necropsy) are conducted as needed, and tissue and blood samples are collected for additional diagnostic work-up at the VDL. Recommendations for treatment and disease prevention are provided as well. In the face of disease outbreaks, moribund animals are delivered directly to the VDL for necropsy and further diagnostic workup.

Dr. Miller-Morgan's services are a major component of the Aquatic Animal Health Program created by Oregon Sea Grant and the CVM. The program was originally implemented to address the needs of the ornamental fish industry through outreach and services to hobbyists, retailers and wholesalers, and to provide training in pet fish medicine for the veterinary community in Oregon and the greater Pacific Northwest.

The need for quality, scientifically based outreach in fish health management and veterinary services was much greater than anticipated and the program has grown significantly. The program is currently involved in local, national and international cooperative initiatives

and has partnered with hobbyist organizations, corporate entities, extension programs in Arkansas and Florida, and the Aquarium Science Program at Oregon Coast Community College. The goals for the program are to improve the overall quality of aquatic animal health management throughout the industry and improve access to veterinary care. Dr. Miller-Morgan also provides a wide variety of continuing education opportunities for practicing veterinarians, fish wholesalers and retailers, and aquarium hobbyists, as well as training opportunities for veterinary students from the CVM.

In addition to Dr. Miller-Morgan's services, the VDL has recently added two new tests for fish diseases. Koi herpes virus (KHV) is a cause of significant mortality in the koi industry. It is considered a "reportable" disease. In response to a need by both producers and hobbyists for a rapid and reliable means to verify infection by the virus, the VDL recently began offering a PCR-based diagnostic test for KHV. Samples from deceased, suspect fish can be rapidly analyzed for the presence of KHV genetic material, verifying infection and providing the hobbyist a basis for control measures.

The other new test is a diagnostic PCR for *Pseudoloma neurophilia*, a microsporidean parasite that infects the central nervous system of zebrafish. Zebrafish have become an extremely important laboratory animal for biomedical research. As *P. neurophilia* infection causes significant health problems in infected fish, there is potential for interference with experiments and research data in addition to the concern for the optimal health of the animals. The VDL now offers a PCR test for *P. neurophilia*. Research laboratories are now able to screen zebrafish colonies for this infection and work towards elimination of the parasite from their facilities.

Aquatic animal health is now widely recognized as a viable and important component of veterinary practice, and I expect aquatic animal diagnostics at the VDL to be a growing segment of our services. If you need help with a fish disease problem, or have questions related to our aquatic animal diagnostic services, do not hesitate to contact us for assistance.

**Dr. Tim Miller-Morgan at
the Hatfield Marine Science
Center in Newport.**



Clinical Reports

Key Nutrient Found to Prevent Cataracts in Salmon

The role of a key nutrient which prevents cataracts in salmon has been revealed by eye specialists at the University of East Anglia. Research published September 30 in the American Journal of Physiology shows how the nutrient histidine, when added to the diet of farmed salmon, stops cataracts from forming.

Following fears over BSE in the early 1990s, blood meal was removed from the diet of farmed salmon. This coincided with a large increase in the incidence of cataracts which cause economic losses and fish welfare problems. Lead author Dr Jeremy Rhodes, from the Norwich Eye Research group at UEA, said: "The international research team of which we are a part have identified a key nutrient (histidine) that is present in high quantities in blood meal but was deficient in the post 1990s diet. We also found that by adding histidine to the salmon's diet, cataract could be prevented."

During the life cycle of salmon the young salmon parr spend the early part of their life in fresh water before they enter the sea as salmon smolts, where they grow to maturity before returning to fresh water to spawn.

"In this paper, the latest of several from the project, we show that histidine has a protective role in the lenses of salmon enabling them to withstand the considerable environmental stresses that their life cycle demands. When histidine is deficient in the diet, these environmental stresses lead to the development of cataract."

Salmon farming is worth \$11 billion worldwide and Norway is the largest producer with a 33 per cent share. Fish farming is Norway's third largest exporter after oil and metals. A multi-centre collaboration between the research labs of the University of East Anglia's Norwich Eye Research Group and the National Institute of Nutrition and Seafood Research (NIFES) in Norway and industrial partners Biomar Ltd (Scotland) and Marine Harvest (Norway) was set up in 2004 to investigate the cause of the cataract outbreaks in farmed salmon.

The work of this collaborative group has had a global impact on the salmon farming industry and the dietary histidine content of farmed salmon has been increased as a direct result of this work. A synthetic histidine compound has recently been approved for use within the EU and work from the group was quoted in the conclusions of the European Food Safety Authority.

Science Daily
October 12, 2010

WAVMA *Aquatic Vet News* Column

"Expanding Aquatic Veterinary Practice Opportunities"

Guidelines for Submission:

This new AVN column provides the opportunity for members to describe their experiences in offering aquatic veterinary services to clients.

Submission deadlines: all contributions should be submitted to the Newsletter Editor by February 15, May 15, August 15 or November 15 for the next quarterly edition.

Practice Advertizing: members that contribute can also have a business card sized advertisement of their practice published at no cost in *Aquatic Vet News*.

Contributions of 150-200 words, addressing the following (or similar) questions, are encouraged:

How did you get interested in providing aquatic veterinary services to clients, what type of services do you provide and for which aquatic species?

How did you inform existing and potential clients about your services when you first began and how receptive were clients?

What proportion of your practice income comes from aquatic veterinary services and how do your charges compare with those offered for non-aquatic animals?

[Please do not mention specific prices as this might be interpreted as "price-fixing."]

All members are encouraged to contribute.

Material will be edited, as needed, for content and to fit available space. All authors will be credited with for their contributions.

Clinical Reports

Warm water can trigger deformities in farmed fish

EU-funded scientists have discovered that temperatures greater than 16°C can cause skeletal deformities in young salmon. The finding is part of the FINE FISH ('Reduction of malformations in farmed fish species') project, which received EUR 3.02 million under the SME (small and medium-sized enterprise) cross cutting activity of the Sixth Framework Programme (FP6). Results of the study were recently published in BMC (BioMed Central) Physiology.

Spinal disorder, which can occur relatively frequently among intensively farmed fish, presents an important health and productivity challenge for the aquaculture sector. Unfortunately, there is a lack of information on the underlying molecular mechanisms involved in bone deformities in fish and other farmed animals which would help curb this problem.

The team of four scientists from Chile and Norway involved in the study wanted to improve on this knowledge base by studying the bone metabolism and pathogenesis of vertebral fusions in Atlantic salmon (*Salmo salar*). The researchers reared 400 juvenile salmon in water at a temperature of 10°C and a further 400 at a temperature of 16°C. Salmon farmers often use warmer water to increase fish growth rates, and the two tanks with the two temperatures were observed over a period of time to document any ensuing differences as a result of temperature.

Indeed, the study showed that bone and cartilage production was disrupted when temperatures were elevated. This resulted in an increased rate of deformities for the 16°C group. This group of fish grew faster, but more than a quarter (28%) was found to show some signs of skeletal deformity (compared to 8% of the fish in the 10°C group).

Co-author of the study Dr Harald Takle from the Norwegian University of Life Sciences in Norway and AVS Chile explained that the results 'strongly indicate that temperature-induced fast growth is severely affecting gene transcription in osteoblasts and chondrocyte bone cells, leading to a change in the tissue structure and composition'.

The researchers conducted further studies specifically on the salmon with the vertebral abnormalities and found that the deformity process involves molecular regulation and cellular changes similar to those found in intervertebral disc degeneration in mammals.

The findings add to a considerable body of work produced under the FINE FISH project. FINE FISH generated new practical knowledge on how to reduce the incidence of malformations in the major fish species used in European aquaculture production, and how to apply this to the professional sector, made up largely of SMEs.

Eleven of the 20 partners that committed time under FINE FISH were SMEs. Mr Courtney Hough from the Federation of European Aquaculture Producers (FEAP), FINE FISH's coordinating partner, explained that the direction of the research, the presentation of results, and the field trials were shaped by the SMEs' contributions and desire to be involved. In fact, the impetus for FINEFISH originated from a hatchery workshop, where the SME participants themselves requested that such a project be realised.

'The focus given to application of results in a practical manner to the SME hatchery sector was of extreme importance to the FEAP, whose key interest was to have clear recommendations for the improvement of performance in the European fish hatchery sector,' Mr Hough told Research Headlines.

As a result, there are several tools available on the project's website including the FINE FISH diagnostic manuals for individual species (bass and bream, industrial monitoring, cod, trout, and salmon) and material used in the series of training courses. Mr Hough noted that the manual, 'Control of Malformations in Fish Aquaculture: Science and Practice', was one of the key products developed under the project.

Another important outcome was the establishment of new professional partnerships between SMEs and the research sector, several of which have moved on to explore new challenges.

'One of the key messages from this project was that genuine collective research requires building a solid bridge between the research and SME participants,' Mr Hough added. 'This means active participation and commitment within such projects as well as understanding their limits.'

FEAP estimates that 650 000 tonnes of fish are farmed in the EU annually (compared to 60 000 tonnes in 1970). Within Europe as a whole, the total production is more than 1.6 million tonnes. Norway is a major contributor to Europe's aquaculture sector with over 860 000 tonnes of salmon and trout produced each year.

Hatcheries produce fertilised eggs, larvae, fry and juveniles that represent the valuable starting materials for the majority of European fish farmers.

Source: <http://tinyurl.com/26xk8xa>.

Aquatic Vet News

Quarterly Newsletter

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*.

Really excel by volunteering to be an Associate Editor to collate information and edit select *Aquatic Vet News* columns.

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 or submit it today to Nick Saint-Erne (Saint-Erne@Q.com).

Submission Deadlines:

Issue 1 – February 15 (published early March)

Issue 2 – May 15 (published early June)

Issue 3 – August 15 (published early September)

Issue 4 – November 15 (published early December)

While any information directly relevant to aquatic veterinary medicine might be published, we particularly invite contributions for (and Associate Editors to assist with) the following regular columns:

(Submissions may be edited to fit the space available. One page is ~1,000 words).

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 (½ to 1 page).

Clinical Cases

Clear description of a distinct clinical case or situation and how those were resolved (1-3 pages)

Book Reviews

Brief review of a published book, including an overview and critique of the contents and where to obtain the book (½ to 1 page).

News & Views

Brief synopsis or information about news published elsewhere (½ to 1 page).

Publication Abstracts

Abstracts of published veterinary and scientific journals with full citation/reference (authors, date, title, and journal volume and page numbers – ½-1 page).

Legislative & Regulatory Issues

Synopsis or description of emerging legislation or regulations with information on how to access further detailed information (½ to 1 page).

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 (½ to 1 page).

Meetings & CEPD Opportunities

Description or synopsis of upcoming aquatic veterinary or (veterinarian-relevant) non-veterinary in-person or on-line educational meetings noting the meeting title, dates, location, and contact person or website (½ to 1 page).

Jobs Available

Description of available full or part-time employment for aquatic veterinarians (½ to 1 page).

Pictures

Pictures & Photographs

Contributors of original photographs illustrating aquatic veterinary practices or procedures will be credited.

Emerging Issues

Botswana gets Thailand's help with mystery fish disease

October 28, 2010

Justice Kavahematui

[GABORONE]

A lack of laboratory equipment and technical expertise has left Botswana unable to find the cause of a fatal disease that is ravaging its largest and most important fishery. Fishing is the main source of protein and revenue for many people in the Okavango Delta in the north of the country. This makes fishing an important socio-economic activity in the area, according to Keta Mosepele, a senior research fellow at the Okavango Research Institute.

But now the fish - mainly the commercially important tiger fish and the catfish - are dying in the Okavango Delta and in nearby Lake Ngami. The Botswana National Veterinary Laboratory in Gaborone has been unable to identify the disease.

Botswana has now turned to Thailand for help: it shipped samples there for testing in late September, according to Chandapiwa Marobela, a veterinary microbiologist and the laboratory's acting deputy director. It is now waiting for the results. A senior wildlife officer at the Ministry of Environment, Wildlife and Tourism Shaft Nengu said Botswana has been collaborating on research with Thailand through the UN Food and Agriculture Organization.

The outbreak was first reported in May, when fishermen found dead fish in both the delta and the lake. Infected fish grew large sores and eventually died from secondary infections. The discovery was reported to the Department of Wildlife and National Parks, which collected samples of dead fish and passed them to the laboratory in Gaborone for tests. But staff at the laboratory has been unable to establish the type of disease.

Marobela attributed the failure to a lack of infrastructure, human capacity and funding. "We don't have the right equipment and competency," she told *SciDev.Net*. She added that the National Veterinary Laboratory has no specialists on fish diseases and that the country lacks good fisheries research departments because of a shortage of government funding.

Marobela also said this was not the first time the laboratory had been unable to diagnose fish diseases. During [the last outbreak of fish disease in 2007, which turned out to be epizootic ulcerative syndrome](#), a seasonal disease caused by a fungal infection, the laboratory also sent samples to Thailand. But there has been no improvement in Botswana's capacity to diagnose fish disease since, she said.

See the source (<http://tinyurl.com/29hdlq7>) for the full story.

FDA considering approval of genetically engineered salmon

Greg Cima

Some veterinarians and consumer advocates have recommended that the Food and Drug Administration require more data before deciding whether to allow a company to sell genetically engineered salmon in the U.S. Several veterinarians who serve on the FDA Veterinary Medicine Advisory Committee, which is examining the issue, said in late September they found information gaps and flaws in some studies of the fish, but some expect and hope the salmon eventually will be sold in grocery stores. The FDA intends to regulate genetic modifications in food animals as drugs, because they are intended to alter the structure or function of the genetically altered animals.

AquaBounty Technologies produces the modified Atlantic salmon, also known as AquAdvantage salmon, by incorporating an rDNA construct with gene-coding sequences from ocean pout and Chinook salmon. The construct causes the modified fish to grow more rapidly, and company information states that the fish potentially grow to market weight in half the time of naturally spawned farmed salmon. The company also asserts that the fish have about 10 percent improved feed conversion rates over other farmed salmon.

The FDA has been considering public comments and suggestions from the VMAC. Prior to making its decision, the FDA also needs to determine whether to prepare an environmental impact statement or issue a finding of no significant impact.

For full article, go to:

http://www.avma.org/onlnews/javma/nov10/101101r_pf.asp



Both of these Atlantic salmon are 18 months old. The larger fish is an AquAdvantage salmon, which has been genetically modified to grow more quickly than conventionally spawned Atlantic salmon.

Legislative & Regulatory Issues

European Parliament Members call for a strong European aquaculture sector

Marika Armannovica

Fisheries - 17-06-2010

A stronger aquaculture in Europe could help meet the growing consumer demand by providing alternatives to wild fish species. However, safeguards are needed to prevent environmental and public health risks, says a resolution adopted by the European Parliament on Thursday. MEPs argue that clearer rules, less red tape and research investment are needed for the sector to take off. The resolution drafted by Guido Milana (S&D, IT), and adopted by 420 votes to 15 with 7 abstentions, suggests ways of boosting the European aquaculture sector, which is lagging behind the industry in other parts of the world.

The aquaculture sector requires investment, long-term planning and hence clear and stable rules, emphasise MEPs. They therefore call on the Commission to consolidate all EU legislation on this sector. Future legislation should lay down standard certification criteria for products and basic parameters on environmental impact, use of water resources, feeding of farmed fish, molluscs and crustaceans, product traceability and labelling, fish health and welfare standards. Implementation and checks would be the responsibility of Member States.

MEPs also stress the need to lay down rigorous quality and traceability criteria and clear labelling principles for high-quality and organic aquaculture products. The Commission is asked to introduce an eco-labelling programme for fishery and aquaculture products that follows the current general EU guidelines in the area. Arguing that sector's success will largely depend on a more business-friendly environment, the resolution urges Member States to reduce red tape for start-ups, for example by creating one-stop shops for administrative formalities.

The resolution also argues that European aquaculture should give priority to fish species which do not need other fish as part of their feed or which require smaller amounts of fish meals and oils.

Lastly, pointing to the damage caused to aquaculture farms by birds of prey, in particular cormorants, MEPs repeat their call for a European cormorant management plan. They also stress the need to provide compensation for damage caused by animals that are protected by law.

http://www.europarl.europa.eu/pdfs/news/expert/infopress/20100616/PR76217/20100616IPR76217_en.pdf

USFWS Solicits Input on Petition to Control Spread of Chytrid Fungus in Amphibians

Tuesday, Nov. 2, 2010, 2 p.m. EDT

The U.S. Fish and Wildlife Service is seeking public input on a petition to list all amphibians and amphibian eggs infected with chytrid fungus (*Batrachochytrium dendrobatidis*), or *Bd*, as "injurious wildlife" under the Lacey Act. Species classified as injurious wildlife may not be imported into the United States or traded between states.

Defenders of Wildlife, a nonprofit organization dedicated to the preservation of native animals and plants, submitted the petition in 2009. The Defenders of Wildlife group, according to FWS, is concerned that unregulated trade threatens the survival of many amphibians because the fungus causes chytridiomycosis, a disease that proves deadly to amphibians. *Bd* also has been identified as a primary factor in the listing of several amphibian species as threatened or endangered.

"The worldwide decline of amphibians is of great concern to us," said Rowan Gould, acting director of FWS. "Chytrid is attributed as a major cause of this amphibian mortality. We understand that halting the spread of the fungus or eradicating it will take more than just regulating importation and transportation of infected amphibians, but it is a major step in the right direction."

FWS published the Notice of Inquiry in the Federal Register on Sept. 17. The notice and the Defenders of Wildlife's petition are available at www.regulations.gov under Docket No. FWS-R9-FHC-2009-0093.

Comments may be submitted [electronically](#) or mailed or hand-delivered to Public Comments Processing, Attn: Docket No. FWS-R9-FHC-2009-0093, Division of Policy and Directive Management, U.S. Fish and Wildlife Services, 4401 North Fairfax Drive, Suite 222, Arlington, VA 22203.

Poison Dart Frog



Legislative & Regulatory Issues

NAA Talking Points on USFWS Petition to Halt Spread of Amphibian Disease, Chytrid Fungus

November 1, 2010

The U.S. Fish and Wildlife Service (USFWS) recently posted a notice in the Federal Register seeking information concerning the possible designation of all live amphibians or their eggs that are infected with chytrid fungus (*Batrachochytrium dendrobatidis* or Bd) as “injurious wildlife” under the Lacey Act.

The National Aquaculture Association urges all members to submit comments to USFWS opposing the listing of live amphibians infected with the chytrid fungus as injurious wildlife and has developed talking points that may be useful in developing comments. Form letters are not heavily weighted during agency review of the comments that are received. Each letter should be individually written.

Please do not copy and paste the following talking points, but express your opposition using the suggestions to support your concerns.

- The fungus has been impacting amphibians in the United States since the 1970s and is widely distributed throughout the country. Adding Bd infected amphibians to the Injurious Species List will not slow or prevent disease spread.
- Amphibians are present in all outdoor production systems and it would be impossible to eliminate them or prevent their entry to the farm.
- It would be impossible to sterilize outdoor production systems or eliminate fungal spores in or on water, animals, plants, sediments, or containers that are exported or shipped interstate.
- The Lacey Act provides the authority to list wildlife as Injurious Species and not their associated pathogens. It is questionable whether the USFWS has the legal authority to list a pathogen under the Injurious Species provisions of the Lacey Act.
- Currently, the USFWS is only proposing to address a single mode of transmission of the Bd fungus and has not proposed restricting the movement of irrigation water, soils or sediments, or sport fishing in Bd infected areas. Why not?

- Under the OIE (World Organization for Animal Health) guidelines that the USFWS is proposing to use for a farm to be declared free of the Bd fungus, a two year history of negative tests would be required before a farm could ship amphibians or product that might accidentally contain an amphibian (e.g., a tadpole in a shipment of fathead minnows).
- The economic impact of the USFWS listing Bd infected amphibians as an Injurious Species will be enormous, as all movement of live aquatic organisms that might accidentally contain an amphibian would cease for at least two years.

Comment letters must be received or postmarked by December 16, 2010 to Federal eRulemaking Portal: <http://www.regulations.gov> by following the instructions for commenting to Docket No. FWS-R9-FHC-2009-0093. or by U.S. Mail addressed to Attn: Docket No. FWS-R9-FHC-2009-0093, Division of Policy and Directives Management, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Suite 222, Arlington, VA 22203.

To read the USFWS Federal Register Notice or Q&A's provided by USFWS, visit <http://www.fws.gov/fisheries/ans/ANSInjurious.cfm> and scroll down to the “Chytrid Fungus – September 16, 2010” information.

National Aquaculture Association

P.O. Box 1647
Pine Bluff, AR 71613

Telephone: 870-850-7900
Fax: 870-850-7902
Email: naa@thenaa.net

[Aquatic Continuing Education and Professional Development](#)

Aquaculture America 2011

February 28 – March 3 2011

New Orleans, Louisiana

Make plans to attend a Joint Special Session

Advances in Aquatic Veterinary Medicine

March 2, 2011 (8:00am – 5:30 pm)

The WAVMA/AVMA sponsored Aquatic Veterinary Session program with speakers and presentation titles is available on the www.WAVMA.org News page or directly from <http://www.wavma.org/index.cfm/id/5/did/12555>.

Veterinarians participating in this Special Session will receive a Continuing Education & Professional Development (CEPD) Certificate for possible use towards meeting annual veterinary licensing requirements.



For details on Aquaculture America 2011 registration and hotel accommodation go to www.WAS.org

Visit the AVMA & WAVMA Booths (#135 and 137) to discover more about Aquatic Veterinary Medicine



Interested in free registration in return for spending a few hours promoting aquatic veterinary medicine at the Aquaculture America 2011 WAVMA/AVMA booth?

If so, contact Julius Tepper (cypcarpio@aol.com) or David Scarfe (dscarfe@avma.org) ASAP – up to 6 Conference badges will be provided on a first-come, first-served basis.



Aquatic Continuing Education and Professional Development

36th Eastern Fish Health Workshop

Mt Pleasant, South Carolina
28 March – 1 April, 2011

Currently accepting speakers until the program is full.

Early Registration: postmarked before 1 February 2011 (\$175). Late Registration: 2 February and thereafter (\$200).

Sultry, stylish, and colorful, Charleston is a town without rival. The low, narrow peninsula of this welcoming town juts into the water between her two great rivers, the Ashley and the Cooper. Thus surrounded by sparkling beaches, lush marshes, and exotic palmettos, Charleston is the center of the Carolina Low Country. Indeed Charleston has it all - elegance, beauty, charm and history... and now it shall host the 36th Annual Eastern Fish Health Workshop.

SPECIAL SESSIONS

- The evolution of Herpesviridae and fish disease - Tom Waltzek
- Keeping 'em happy, healthy, and in those aquaria – Shane Boylan
- Probiotics: a SCAT-er-gun approach – Sally Molloy
- Just when you thought it was safe to go back: shark health – Alistair Dove
- Pondering the realities of antibiotic therapies - Mar-in Tuttle-Lau
- The Gulf of Mexico Oil Spill and environmental health – Greg Lewbart
- Seeing in toto: the ecology of disease – Karen Burnett
- Coral Ecosystem Health – Cheryl Woodley
The Aquatic Detective: Unusual and Perplexing Case Reports

Continued Education Opportunity:

Histopathology, Part II: Finding and Interpreting the Overlooked will be offered on Friday, April 1 from 8:00 AM until 4:00 PM. The course is chaired by Dr. Stephen A. Smith of Virginia Tech and will involve presentations on the normal histology and histopathology of tissues of fish that were not covered in last year's Eastern Fish Health Workshop CE Session. Organ systems addressed this time will include the eye, muscle, endocrine system, gastrointestinal system and reproductive system. There will also be an introduction to fixation, processing and staining techniques to open the session. As an added bonus, this year's participants will receive a CD-ROM of

the presentations given this year as well as those presented at last year's CE Session (i.e. skin, gills, liver, kidney, cardiovascular, brain and nervous system, spleen and reticuloendothelial tissues). Participants in this program will earn 6.0 CE credit hours from the Fish Health Section (FHS) of the American Fisheries Society. The FHS is a RACE certified continuing education provider (No. 546) with the American Association of Veterinary State Boards.

This program is designed to meet the requirements for six (6.0) hours of veterinary continuing education in jurisdictions which recognize AAVSB RACE approval; however, participants should be aware that some boards have limitations on the number of hours accepted in certain categories and/or restrictions on certain methods of delivery.

For additional information contact Dr. Smith (stsmith7@vt.edu). Cost is \$40 (U.S.) and includes registration, handouts, breakfast, lunch and break.

Abstracts must be submitted by 1 March 2011. They can be sent via email to rcipriano@usgs.gov. Power Point presentations are due by 15 March 2011.

Best Student Paper Presentation:

The Eastern Fish Health Workshop will donate \$200 and a plaque for the Best Student Presentation. Eligible individuals must (1) be enrolled in an undergraduate or graduate research program at the time that the presentation is given and present his/her own research. The award will be presented at our Banquet. You must register for this competition by completing the appropriate section of the Word attachment entitled "title"

Registration: A \$175.00 registration fee (U.S. dollars) includes a reception on Monday evening, workshop proceedings, refreshments at breaks, buffet breakfasts and luncheons on each of the three days of the workshop, and the Anniversary Banquet on Thursday night. Make checks payable to the "Eastern Fish Health Workshop" and return payment with your registration form by 1 February 2011. A late registration fee of \$200.00 (U.S. dollars) is charged after this date. The EFHW does not accept credit cards and there are no daily or discounted registrations.

Lodging Accommodations: Accommodations must be made directly with The Holiday Inn Charleston – Mt Pleasant at (843) 884-6000. You must identify your affiliation with the Eastern Fish Health Workshop and call before 1 February 2011 to secure a room at the special convention rate (\$129.00 per night + tax).

Rocco C. Cipriano

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Lab: 304/724-4572

rcipriano@usgs.gov

Come Investigate the Opportunities and Share the Benefits of Joining the Fastest Growing Discipline in Veterinary Medicine



Become a WAVMA Member – go to www.WAVMA.org



[Aquatic Continuing Education and Professional Development](#)

42nd IAAAM Conference

May 7-11, 2011

Mirage Hotel, Las Vegas (<http://www.mirage.com>).

This year the Mirage is both our hotel and conference host, so all conference events will be happening in one location! Rob Laughlin and I have been very busy planning. I made a trip out to the Mirage in September to work with Rob, the animal care staff, education staff, conference planner and caterers. For those of you who like to plan ahead, I'm including as much information as we currently have available. The IAAAM Board is looking forward to seeing everyone in Las Vegas. Stay tuned, as more information will be passed along as available.

Lisa Mazzaro
IAAAM President Elect

Call for Student Travel Award Applications

The IAAAM Executive Board will again be granting monetary awards to students planning to deliver oral presentations at the annual IAAAM conference in May 2011. The awards are intended to defray the cost of travel to the May 7-11, 2011 conference in Las Vegas, Nevada in order to promote student participation in the professional program, and to further the commitment of the IAAAM to its students. Money will be awarded on a competitive basis, with the goal of supporting as many students as possible. Undergraduate students, Masters and PhD students, veterinary students, veterinary interns/residents, and postdocs are eligible. [{more info}](#)

Abstract Submission Information

For those planning on presenting at the conference, the deadline for abstract submission is February 11, 2011. The abstracts will highlight your work in the area of marine mammals, fish, aquatic birds, aquatic amphibians and reptiles, or aquatic invertebrates. The abstract submission form is on the IAAAM website:

http://www.iaaam.org/associations/9151/files/abstract_instruct_2011.pdf

Please follow the specific instructions. Abstracts submitted with no mistakes and submitted on time will be eligible to win a prize to be presented at the conference.

1ST AUSTRALASIAN SCIENTIFIC CONFERENCE ON AQUATIC ANIMAL HEALTH

July 5-8, 2011

Pullman Reef Hotel, Cairns, Queensland, Australia

Host - Australian Fisheries Research Development Corporation, Aquatic Animal Health Subprogram (<http://tinyurl.com/2cbmn6q>)

Preliminary Announcement-The FRDC Aquatic Animal Health Subprogram (AAHS) 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 bio-security. 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.

While the format of the 2011 conference is expected to be similar to previous conferences with an international keynote speaker, presentations on a range of aquatic animal health topics, prize for best student presentation etc., a recent decision was made to expand the conference to encompass the Australasian region, attracting participants from New Zealand, SE Asia and beyond.

If you wish to receive the second conference announcement which will include the draft program, registration (registration fee will be Aus\$330) and abstract forms and further accommodation details please provide 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).

Please provide the following details: contact details, your name, institution, postal address, email address, fax and telephone numbers.

Area(s) of interest: Research, management, policy and regulation; finfish, crustaceans, molluscs, reptiles, amphibians; viral, bacterial, parasitic, fungal pathogens; diagnostic test development and diagnostics.

Aquatic Continuing Education and Professional Development

AQUAVET[®]

A Program in Aquatic Veterinary Medicine
www.aquavet.info

AQUAVET[®] I

COURSE ANNOUNCEMENT May 29 to June 24, 2011

We are pleased to announce that **AQUAVET[®] I – An Introduction to Aquatic Veterinary Medicine** will be offered by **AQUAVET[®]** in 2011. The course is designed for veterinary students and veterinarians who have an interest in applying their veterinary training to aquatic animals.

The course will be presented this year at Roger Williams University in Bristol, Rhode Island. Bristol is a picture perfect New England town about 20 minutes from Newport. The course dates are **May 29 to June 24, 2011 inclusive**. Arrival is May 28th and departure is June 25th. The combined tuition, room and board fee for the 4-week course is \$1850 for full time veterinary students, and \$3250 for veterinarians. Through the generosity of a program benefactor, a \$200 scholarship will be applied to partially offset the fee for all full time veterinary students resulting in a net tuition of \$1650 for the accepted full time veterinary students this year.

In addition, we anticipate a limited number of summer research opportunities during an 8-week period following the course. Students selected as **AQUAVET[®] Summer Research Fellows** are not required to pay tuition or room and board fees for the 8 weeks of the research program itself. In addition, research students will receive a stipend of \$1500 for the research period. At least one Fellowship will be restricted to aquaculture related projects.

Detailed information about the course is available on our website. Applications for admission are due by **January 14, 2011**. The application is available on our website. You will receive an e-mail acknowledging receipt of your completed application. Please visit our website at:

www.aquavet.info

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Aquatic Continuing Education and Professional Development



AQUAVET® II

COURSE ANNOUNCEMENT May 29 to June 10, 2011

We are pleased to announce that an advanced course in **Comparative Pathology of Aquatic Animals** will be offered by **AQUAVET®** in 2011. The course will be oriented toward the pathology of vertebrates and invertebrates commonly used as laboratory animals, encountered in display aquaria, and of importance to aquaculture enterprises. Representative species for each category will serve to demonstrate features of commonly observed diseases. The course is designed for veterinary students and veterinarians who have participated in **AQUAVET® I** or have had comparable experiences in aquatic animal medicine and pathology.

The course will be presented this year at Roger Williams University in Bristol, Rhode Island. Bristol is a picture perfect New England town about 20 minutes from Newport. The course dates are **May 29 to June 10, 2011 inclusive**. Arrival is May 28th and departure is June 11th. The combined tuition, room and board fee for the 2-week course is \$1050 for full time veterinary students, and \$1750 for veterinarians.

In addition, we anticipate a limited number of summer research opportunities during an 8-week period following the course. Students selected as **AQUAVET® Summer Research Fellows** are not required to pay tuition or room and board fees for the 8 weeks of the research program itself. In addition, research students will receive a stipend of \$1500 for the research period. At least one Fellowship will be restricted to aquaculture related projects.

Detailed information about the course is available on our website. Applications for admission are due by **January 14, 2011**. The application is available on our website. You will receive an e-mail acknowledging receipt of your completed application. Please visit our website at:

www.aquavet.info

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Aquatic Veterinary Opportunities

The School of Animal and Veterinary Sciences at the University of Adelaide, South Australia is seeking for a Lecturer/Associate Professor in Aquaculture or Poultry Health.

Job Reference Number: 16089

Applications - Open until filled

Salary

(Level B) \$70,075 - \$83,215

(Level C) \$85,837 - \$98,982

(Level D) \$108,009-\$118,992

The University of Adelaide has established South Australia's first Veterinary School at its historic Roseworthy Campus. The Vet School's new facilities house the teaching laboratories for preclinical and clinical skills training. The Veterinary Teaching Health Centre opens in August 2010, ready for students as they enter their clinical years. The campus is located on a 1600 ha property which includes a working farm. The rural setting allows excellent access to large animal species as well as a full service teaching hospital and ambulatory clinic.

There are a number of exciting opportunities to be involved in the development of our School of Animal and Veterinary Sciences. You will have the chance to develop your research program while shaping the future of teaching at the school.

The aquaculture and poultry livestock industries are important in South Australia. The School of Animal and Veterinary Sciences is seeking a veterinarian to teach aquaculture or poultry health into the BSc (pre-veterinary and animal science) and Doctor of Veterinary Medicine courses. It is expected that the successful applicant will be research active and may provide a consultancy service to support the teaching role. Knowledge of and engagement with the respective industries would be desirable. Poultry CRC node and the SARDI aquaculture research infra-structures provide exciting research opportunities on campus.

Position Requirements (minimum):

- * relevant experience or a higher degree, preferably at doctorate level or equivalent, in aquaculture or poultry health
- * evidence of contributions to the teaching effort of a school at tertiary level
- * strong interpersonal skills and demonstrated ability to work collaboratively as a member of teaching and research teams
- * a qualification in Veterinary Science acceptable for registration in South Australia.

Applications must include:

- * résumé/Curriculum Vitae
- * address the selection criteria
- * quote the relevant reference number
- * include residency status
- * include the names, addresses and/or email details of three referees

e-Mail applications to vanessa.jones@adelaide.edu.au or forward to:

Ms Vanessa Jones

Human Resources

The University of Adelaide

South Australia 5005

See <http://www.adelaide.edu.au/jobs/current/16089/> for more details including Selection Criteria, Superannuation, Term of Position, etc.

Did You Know—Home Aquarium Fish?

Aquarium keeping is amongst the most popular of hobbies with millions of enthusiasts worldwide. Together all countries of the European Union are the largest market for ornamental fish; however, the United States is the single largest importer of ornamental fish in the world (FAO 1996-2005; Chapman 2000).

Although exact figures on the value and trade of the ornamental fish industry do not exist, the value of ornamental fish and invertebrates imported into different countries worldwide is approximately \$278 million US dollars (FAO 1996-2005). Pet industry surveys have estimated the aquarium industry worth over \$1 billion USD (e.g. Cato and Brown 2003; AAPMA 2005).

Although most fish kept in aquariums are from freshwater, the acquisition of marine ornamental fish has greatly increased, popularized by children's movies starring charismatic colorful fishes and other creatures. Recent advances in fish husbandry and aquarium equipment technology have further facilitated the hobby.

Source: E. J. Livengood and F.A. Chapman (2008) University of Florida Extension Fact Sheet (Publication #FA124) – accessible at www.edis.ifas.ufl.edu/fa124

[Aquatic Veterinary Website Links](#)

Approved Vaccines for Use in US Aquaculture Poster Now Available

21 October 2010

The poster is a result of the joint efforts of the U.S. Fish & Wildlife Service's Aquatic Animal Drug Approval Partnership program, the U.S Department of Agriculture's Center for Veterinary Biologics, the American Fisheries Society's Fish Culture and Fish Health Sections, and the American Veterinary Medical Association.

The printed poster is in a large-format (23" x 34") and in full color.
It provides a listing of all currently registered US vaccines for use on aquaculture species.

For each vaccine listed the following information is provided: true name, trade name, dose and administration, permit-tee, and detailed precautions for use. Additionally, the poster includes general recommendations for the use of vaccines for aquaculture species.

As new vaccines are registered, or changes made to existing vaccines, the Poster will be revised accordingly and a new version made available.

The Poster is available free of charge. View or download it from <http://tinyurl.com/2c59q4v>, or order on-line at <http://tinyurl.com/2e6y2xx>, or from Niccole Wandeleaer (AADAP; 406-994-9913; niccole_wandeleaer@fws.gov).

New WVA Veterinary Schools and Faculties Database



The WVA veterinary schools and faculties database is now available at: www.worldvet.org/node/5248. This comprehensive global database is designed to be the definitive resource to identify and link to every veterinary training facility in the World. This database has been developed as part of the World Veterinary Association's commitment and contribution towards the standards of veterinary education and competencies of veterinary graduates around the World. It expands on the Universities, Institutions, Colleges and Schools Awarding Veterinary Degrees (www.worldvet.org/docs/GlobalVetSchools.pdf) database developed by Dr. David Scarfe. The WVA is grateful to Dr. Scarfe for his contribution and maintenance of this database.

It will be useful for individuals wanting to locate veterinary educational institutions and regulatory agencies wanting to check the training establishment of foreign graduates seeking registration to practice. The listing of a veterinary school or faculty does not imply that it meets any global standard established by the WVA or other international organization. The WVA encourages countries and their veterinary school and faculty deans to provide corrections or more up to date information to replace the current content on any of the pages in the database.

To visit the database go to www.worldvet.org and click on the Education link in the main menu on the left side of the screen.

Contact Corner

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Meetings Committee- Dr Julius Tepper. E-mail: cypcarpio@aol.com

Scholarship Committee - Dr David Scarfe. E-mail: dscarfe@ameritech.net

Parliamentarian - Dr David Scarfe. E-mail: dscarfe@ameritech.net

Koi Pond photograph by Nick Saint-Erne

Past Presidents

Dr. Peter L. Merrill (USA) 2007

Dr. Ron Roberts (UK) 2008

Dr. Hugh Mitchell (USA) 2009



World Aquatic Veterinary Medical Association

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

2010 MEMBERSHIP FORM

New Application or Renewal (check one)

ALL New Members or Current Member changing contact information must complete and submit this form.
(Current members, with no change of address, can renew membership and pay annual dues on-line at 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 _____ is this business ; home ; cell/mobile
Secondary Phone _____ is this business ; home ; cell/mobile
*Primary e-Mail _____; Secondary e-Mail _____
(Secondary e-Mail addresses will be used if the primary address becomes non-functional)

Check One Membership Category

- Full Member** (must have graduated from a recognized veterinary school) – US\$100
- Student Member** (must be currently enrolled in a recognized veterinary school or be a graduate veterinarian enrolled in a post-graduate educational program, internship or residency; Student Members receive complimentary (free) Full Membership for the year following graduation from veterinary school) – US\$50
*Primary Veterinary Degree (as awarded e.g. DVM; VMD; BVMS; DEDV; Dr. vet. med.; MVZ, etc) _____
*Year _____; University _____; City _____; Country _____
- Veterinary Technician/Nurse Member** (must be working under the supervision of a veterinarian) – US\$50
*Name of supervising veterinarian _____; Phone _____; e-mail _____
- Affiliate Member** (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
*Total number of current members _____; *Number (or %) of members that are veterinarians _____;
*Estimated number (or %) of members involved with aquatic veterinary medicine (any species or disciplines) _____

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

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: Cheque enclosed; Please charge the credit card below; I will use the secure credit card system on the WAVMA Membership webpage.

Please Mail or Fax this form to:

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

Cheque # _____ attached
Please charge my: Visa; or Master Card
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.

**World Aquatic Veterinary
Medical Association**

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

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

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

We're on the Web:
WWW.WAVMA.org

WHO ARE WE

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

The purpose of the World Aquatic Veterinary Medical Association is:

To serve aquatic veterinary medicine practitioners of many disciplines and backgrounds by developing programs to support and sustain members, and the aquatic species industries that they serve.

To identify, foster and strengthen professional interactions among aquatic medical practitioners and other organizations around the world.

To be an advocate for, develop guidance on, and promote the advancement of the science, ethics and professional aspects of aquatic animal medicine within the veterinary profession and a wider audience.

To optimally position and advance the discipline of aquatic veterinary medicine, and support the practice of aquatic veterinary medicine in all countries.

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 Veterinary-Patient-Client Relationship.

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