

The



quatic

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The Founding Fathers of WAVMA!
Celebrating our 10th Year
2007 - 2016
See articles on pages 19-22

Volume 10, Number 2
Second Quarter, 2016



WHO ARE WE

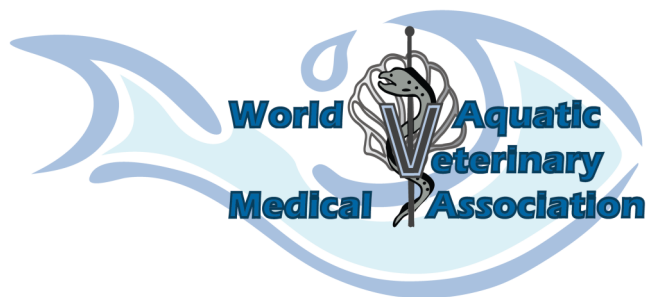
The mission of the World Aquatic Veterinary Medical Association is to serve the discipline of aquatic veterinary medicine in enhancing aquatic animal health and welfare, public health, and seafood safety, in support of the veterinary profession, aquatic animal owners and industries, and other stakeholders.

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.

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.



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Dr Ron Roberts (UK)	2008
Dr Hugh Mitchell (Canada/USA)	2009
Dr Fotini Athanassopoulou (Greece)	2010
Dr Julius Tepper (USA)	2011
Dr Dusan Palic (USA/Germany)	2012
Dr Mohamed Faisal (USA)	2013
Dr Richmond Loh (Australia)	2014
Dr Chris Walster (UK)	2015

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Chris Walster, Secretary	2007-2013
Dusan Palic, Treasurer	2007-2010
Nick Saint-Erne, Treasurer	2011-2014

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Editor's Note

In the past two months I have been traveling more than I have been home. But the many travels have been on good trips, with lots of interesting fish related events. Since May, I have visited all five of PetSmart's Fish Distribution Centers in the USA, went to the AQUAVET 40th Anniversary reunion and seminar, visited the North Carolina Aquarium, the Shedd Aquarium in Chicago, Toronto Ripley's Aquarium, and the Quebec Aquarium.

These are all great aquariums and reports with photos about them will be included in a future issue of *The Aquatic Veterinarian*. Which brings me to an idea for the topic of this editor's note, and the topic of the December issue of *The Aquatic Veterinarian*: an ALL Aquarium Issue!

I would like to devote the 4th Quarter 2016 issue to articles about Public Aquariums around the world, and have case reports submitted by veterinarians at these aquariums to show the kind of work they do. Please share this idea with your colleagues at aquariums so they can submit articles, case reports and other information to me to use in the December 2016 issue. Deadlines for submitting that information would be November 15th.

Also, don't forget the September issue will be an ALL turtle issue, so please send me your interesting articles and case reports about sea turtles and other turtle medicine information. That material is due by August 15th for the September Turtle issue. And be sure to check the WAVMA educational website (<https://www.wavma.org/WebCEPD>) to see the upcoming Webinar about turtle medicine on August 18, 2016 - Dr. Orachun Hayakijkosol, "Sea Turtle Medicine". This webinar will be presented live in August, and then saved on the WAVMA website, along with over 20 other recorded webinars that are free to watch, brought to you by our members, as a benefit to all aquatic veterinarians.



Nick Saint-Erne, DVM,
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*Checking out the fish
as it checks me out
at the Quebec Aquarium /
Aquarium du Quebec.*

Download a QR reader onto your Smart Phone and scan the Quick Response Code to the right. It will take you to the WAVMA.org website page for accessing all of the past WAVMA Newsletters.



You will need your WAVMA User ID and Password to access the most recent issues of *The Aquatic Veterinarian*.

Cover Photo:



The Founding Fathers of WAVMA!
This photo of Board Members was taken at the first Annual General Meeting, July 18, 2007. WAVMA is celebrating our 10th year. 2007 - 2016 See related articles on pages 19-22.

WAVMA Shop

A number of WAVMA branded items (including shirts, mugs, caps) are available at the WAVMA Store. Get yours today!



Go to: <http://www.wavma.org/Shop>

President's Report

For this second quarter report, I'd like to review the events of the 3rd through 5th years of WAVMA [see last quarter's President's Report for summary of the events of the first two years of WAVMA activities], as reported through the words of our former Presidents.

In *Aquatic Vet News* Vol. 3, No. 1, Hugh Mitchell, our 2009 President, discussed how WAVMA has collaborated with other veterinary organizations, including WVA, IABC, AVMA, OIE, FAO, FAVA, BVA, WAS and a virtual alphabet soup of health associations. This shows that very early on WAVMA was recognized as an authority on aquatic animal health.

In *Aquatic Vet News* 3:(2), President Mitchell highlighted some pertinent issues affecting aquatic veterinarians: regulations; lack of aquatic veterinarians [not as problematic in 2016 as it was previously!]; non-veterinarians filling veterinary roles; lack of clinical research on aquatic species; lack of approved drugs and biologics; drug accessibility to clients [without a veterinary Rx]; scarcity of aquatic curriculum in vet schools; definition of an "aquatic animal"; lack of credentialing; client diversity; lack of understanding that fish are "veterinary animals".

The keys to resolving these issues were identified as implementing a good educational website and an aquatic veterinarian certification. I have to interject here that through the tireless work of Chris Walster, David Scarfe, Stephen Reichley and our website host, Gary Fairchild, we have created a phenomenal (and ever improving) website; and since our first 11 Aquatic Veterinarians were certified in 2013 [see *Aquatic Vet News* 7:(3) for information about the completion of the CertAqV Program!] using the program developed by the WAVMA Credentialing Committee, we have now accomplished the two goals that President Mitchell suggested. Maybe that is why WAVMA has continued to grow as a respected, worldwide association.

Also in 2009, we sadly reported the death of our member John L. Pitts, an early pioneer in aquatic veterinary medicine. (see *Aquatic Vet News* 3(4) for information). In 2010 we formed the Student Committee, and also founded the John L. Pitts Aquatic Education Awards Program, which funded aquatic education projects for 7 veterinary students that first year.

The first WAVMA Convention and Annual General Meeting that was not associated with another convention was held in July 2010, in Athens, Greece. President Fotini Athanassopoulou organized a great conference and we followed it with a Mediterranean Cruise! We finished 2010 with a revamped website, a Facebook page, and a big jump in the number of members [from 71 members at the beginning of the year to 126 by year end 2010].

In 2011, President Julius Tepper announced WAVMA became an affiliate member of the World Small Animal Veterinary Association. WAVMA also surpassed 200 members, unveiled the revised website, and created the Fellows Program to honor those members who have distinguished themselves among their peers and who will help guide the Executive Board of WAVMA.

We had our Annual General Meeting in Cape Town, South Africa, in conjunction with the World Veterinary Congress, and participated in the second International Aquaculture Biosecurity Conference in Trondheim, Norway. WAVMA also applied for membership in the World Veterinary Association. Work continued on the Certification Program as well as developing a website platform for future webinar presentations.

In addition to the history of WAVMA recorded in our past newsletters, there is a wealth of medical information in each issue of *The Aquatic Vet News* from the very first issue. You can download pdf files of those issues from our website:

<https://www.wavma.org/News-ViewsAVN-Archive>

Nick Saint-Erne, DVM, CertAqV
WAVMA President
President@WAVMA.org
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The AQUAVET 40th Anniversary Event
By Nick Saint-Erne

On Friday, May 20, 2016 we celebrated the 40th anniversary of the AQUAVET® Program at the Virginia Aquarium & Marine Science Center in Virginia, Beach, VA. There was a lovely dinner and we then got to spend the “Night in the Museum” (or in this case: Aquarium). I will report more about the Virginia Aquarium in the December 2016 issue of *The Aquatic Veterinarian* [The ALL Aquarium issue!], but it is a very nice facility.

This wonderful evening of greeting old friends and meeting new ones was followed on Saturday by a day of lectures preceding the IAAAM Conference at the Hilton Virginia Beach Oceanfront Hotel.

The lectures presented at the AQUAVET conference were as follows:

Donald Abt - The First 40 Years of the Institution known as AQUAVET

Leonardo Ibarra - Health Assessment Project on Free Ranging Dolphins in the Gulf of Mexico

Karissa Sciacca - Identification of Gastrointestinal Foreign Bodies via Ultrasonography in Bottlenose Dolphins

Ilze Berzins - Coral Health, Disease and Demise - Oh My!

Nick Saint-Erne - Pet Fish Industry in the US and Careers in Aquatic Medicine

Mario Guarracino - Overview of Salmonid Aquaculture in Europe

Rick Linnehan - A Veterinarian’s Perspective from Low Earth Orbit

Toni Erkinharju - The Use of Atlantic Lumpfish (*Cyclopterus lumpus L.*) for Sea Lice Management in the Production of Atlantic Salmon (*Salmo salar*) in Norwegian Aquaculture - With Emphasis on Fish Health and Vaccination.

Eric Littman - The Use of Plain Film Radiography, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) in Sea Stars, Using the Ochre Sea Star (*Pisaster ochraceus*) as a Model

Robert George - Surgery of the Reproductive Tract in Southern Rays (*Dasyatis americana*) and Cownosed Rays (*Rhinoptera bonasus*)

Shane Boylan - Diagnostic Imaging in Aquatic Animal Medicine: The Poikilotherms



Above: Sandy Abt, Nick Saint-Erne (AQUAVET 1982), Don Abt.

This great anniversary event was organized by Donald Stremme and his team. Originally AQUAVET was presented by the School of Veterinary Medicine at the University of Pennsylvania, and the College of Veterinary Medicine at Cornell University, but now is administered by Cornell. For more information about AQUAVET, contact:

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AQUAVET® Director
Cornell University
College of Veterinary Medicine
Microbiology and Immunology
C5181 Vet Medical Center
Ithaca, NY 14853
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Photo Above: Emily Christiansen, veterinarian for the North Carolina Aquarium; Greg Lewbart, Professor of Aquatic Animal Medicine at NCSU; and Allison Tuttle, veterinarian at the Mystic Aquarium.



Photo on Left: Craig Harms, Professor, Department of Clinical Science NCSU; Don Abt; Brent Whitaker, National Aquarium, Baltimore.



AQUAVET
40 YEARS!



Secretary's Report

Dear WAVMA members, I am pleased to report that our board continues to work in the interest of all members and for the progress of our noble cause. Under the leadership of our President Dr. Nick Saint- Erne we are exploring various opportunities that would be beneficial to our organization.

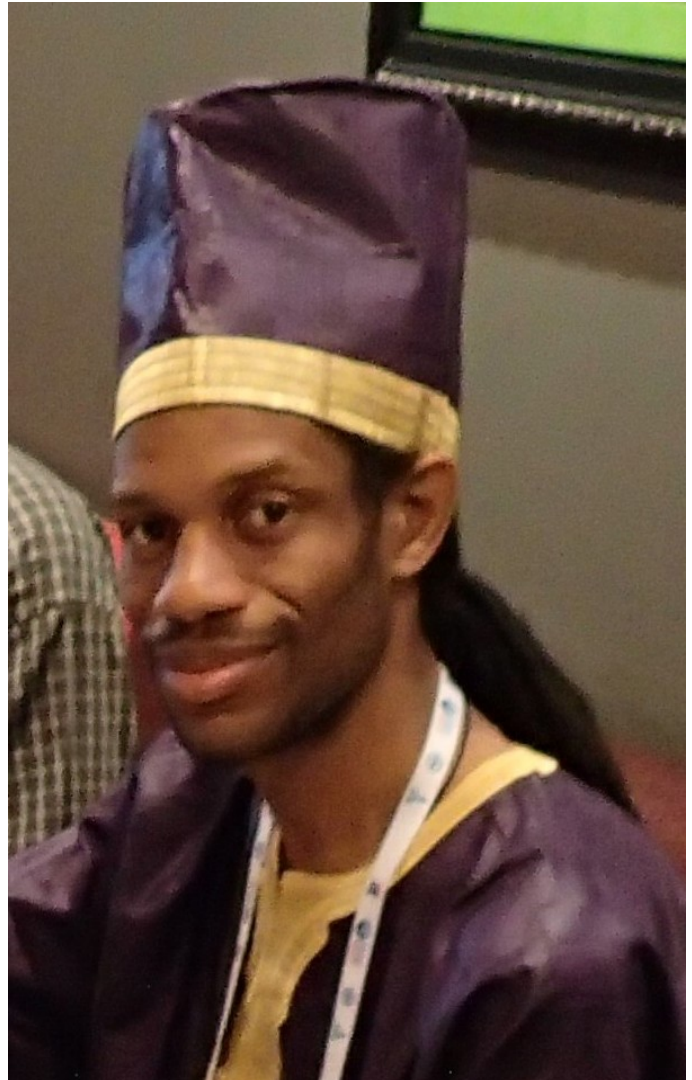
I continue to believe that WAVMA can contribute meaningfully in the field of aquatic veterinary medicine and beyond including multidisciplinary avenues such as the One Health Initiative. This is and will largely depend on our collaborations with sister organizations. One such initiative is the Virtual Conference which was coordinated by Dr. Chris Walster in collaboration with Vet-stream. The information will be available online for a period of time now that the conference is over. I encourage our members to not only take advantage of this opportunity but to also share the information with colleagues who may be interested.

In addition, we have to do our part internally as well and one of the ways is by our membership dues. Against this background therefore, I wish to thank all of you that have renewed your membership for this year and the new members that have signed up with us. The student members continue to be a growing component of our membership and I wish to recognize Justin Krol who is working assiduously to streamline the contributions of our student members to the work of WAVMA.

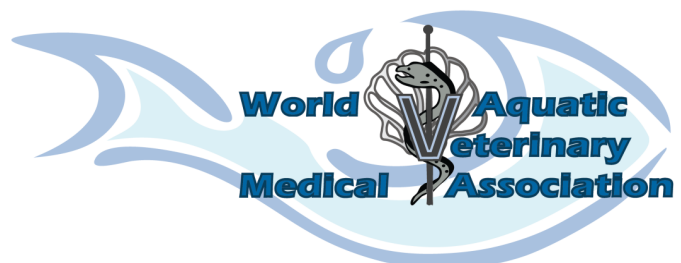
Our programs continue to run successfully, such as our webinars and the CertAqV program where the persons signing up are increasing continuously. If you wish to join the list of colleagues that have successfully completed the process, please check for more details at <http://www.wavma.org/CertAqV-Pgm>.

The board is currently planning our Annual General Meeting at the AVMA Convention in San Antonio, Texas, and we do look forward to having you there. Speaking of which, I do wish to make a plug for more persons to consider serving on the board or on one of the WAVMA committees. Without a doubt there is a lot of talent among our membership and we can all contribute in one way or the other as we continue to explore other avenues which would ultimately bring added benefits to all WAVMA members in other organizations.

As secretary I have been circulating material and invitations from like-minded organizations and I thank the members who may have contributed to surveys. I also wish to salute the members who have been actively responding on the Listserv to queries that members may have. Your input is certainly valued and feedback from student members indicates that many of them have been learning quite a bit from such exchanges. As usual if you do have any suggestions to help us in the board to serve you better please do not hesitate to let us know.



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Treasurer’s Report

WAVMA is beginning its 10th year on firm financial ground. As of May 31, 2016 we have 333 active members, which includes those who participated in the early renewal process at the end of 2015. New memberships are continuing to come in each day. The income that is generated from your dues payment is what funds the many programs WAVMA offers to aquatic veterinarians from around the world. Over the past decade, thanks to our growing and loyal membership base, WAVMA has been able to improve and increase the number of benefits available to members. Connecting with and consulting with colleagues via the email ListServ is just one of many important benefits of being a WAVMA member.

Providing education is one of WAVMA’s primary goals and as such numerous platforms are now available for information sharing and expansion of one’s knowledge. Live, high quality webinars spanning a variety of aquatic veterinary topics are being offered every month by leaders in the field of aquatics. Over 25 lectures have been presented and are available to view at your convenience on our website (<http://www.wavma.org/WebCEPD>), while accumulating continuing education credits. Our Video Library consists of narrated instructional videos of aquatic veterinary procedures, and our Images Library includes photographs of an assortment of diagnostic procedures and gross pathology as well as radiographs. Additional recorded special veterinary presentations are also accessible.

This year for the first time, WAVMA coordinated and conducted a Virtual Conference that attendees could participate in from the comfort of their home or office. WAVMA also provides financial support targeted specifically to veterinary students through the John L. Pitts Aquatic Veterinary Education Awards Program, which provides funding to individual students to offset the expense of participation in aquatic learning experiences, and WAVMA Student Chapters are eligible for partial reimbursement of approved group educational activities.

Each year expenses related to website development and maintenance are budgeted. As a result of maintaining a useable website, our members have access to listings of Aquatic Veterinary Student Externships, Aquatic Veterinary Meetings, Aquatic Employment Opportunities, current Vet School Chapters, and our newest addition, the WAVMA Membership Directory. *The Aquatic Veterinarian* quarterly magazine continues to be an all-encompassing resource for all WAVMA members.

2016 INCOME DETAILS

Memberships:

	ACTUAL	BUDGETED
<i>Veterinarian</i>	10,700.00	11,000.00
<i>New Graduate</i>	600.00	500.00
<i>Vet Student</i>	3,875.00	5,000.00
<i>Vet Tech/Nurse</i>	50.00	100.00
<i>Affiliate (Non-vet)</i>	300.00	0
<i>Library</i>	200.00	0

The number of Certified Aquatic Veterinarians continues to grow, exceeding forty veterinarians now. With this honorific comes the confidence that a minimum knowledge base of veterinary care specific to aquatic animals has been achieved and lends credibility to those who practice in this area of expertise.

Rest assured that over the next decade WAVMA will continue to expand its benefits in support of our growing discipline. Suggestions and new ideas are always welcome. WAVMA greatly values your participation and in return will strive to deliver the highest quality educational experiences and professional support possible.

If you have not yet paid your 2016 dues, please do so now! You can pay online via credit card or using PayPal. Please go to the website to renew your membership and join your colleagues in the World Aquatic Veterinary Medical Association!

Best wishes,

Sharon Tiberio, DVM, CertAqV
WAVMA Treasurer
Treasurer@WAVMA.org
srtiberio@att.net



COMMITTEE REPORTS

Membership Committee

New Members (2nd Quarter 2016)

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

Full Veterinarian Members

Carin Ahner	United States
Teresa Bousquet	Canada
Simon Doherty	United Kingdom
Whitney Greene	United States
Michael Herman	United States
Susan Horton	United States
Fritz Karbe	Germany
Johanna Mahadevan	Australia
Brad McKell	Canada
Mauricio Mendez Escobar	Mexico
Haitham Mohammed	Egypt
Drury Reavill	United States
Nitin Wagh	India
Colby Wells DeGraaf	United States
Heather Williams	United States

Library/Institutional

Vladimir Semenov Russian Federation

Student Members

Farah Gonul Aydin	Turkey
Patrick Biber	Austria
Laura Bradley	Saint Kitts and Nevis
Victoria Caccavone	Saint Kitts and Nevis
Timothy Courtney	Saint Kitts and Nevis
Kimberly Foca	United States
Michelle Garcia-Marrero	United States
Kristen Hughes	United States
Sierra Imanse	United States
Kelsey Johnson	Saint Kitts and Nevis
Maggie Jones	United States
Jia-wen Lim	Australia
Rahul Madan	Saint Kitts and Nevis
Kristen Mader	Saint Kitts and Nevis
Sara Manceaux	Saint Kitts and Nevis
Armin Moslemipour	Iran
Emily Munday	United States
Amanda Murti	Saint Kitts and Nevis
Nicole Nietlisbach	United States
Teresa Perronne	Saint Kitts and Nevis
Jessica Powers	Saint Kitts and Nevis
Nuno Ribeiro	United Kingdom
Ruth Sheppard	United States
Marissa Swan	United States
Chelsea Tabor	Saint Kitts and Nevis
Ana Vale	Ireland
Tina Van Schaik	United States
Laura Whitelaw	United States
Sarah Wright	United States

WAVMA Committees

As a member-driven organization, WAVMA relies on volunteers to help implement programs useful for all members. Any WAVMA member can volunteer on a Committee to help shape the direction of the Association, meet new colleagues, forge valuable and lasting relationships, and help address key issues affecting aquatic veterinary medicine today. To find out more about serving on a Committee, please contact the Committee Chair or the WAVMA Parliamentarian.

Budget and Finance Committee

This Committee develops and regularly revises the Association's annual budget and assists the Treasurer, as necessary, in developing the Association's annual financial reports and tax materials.

This Committee shall consist of the Treasurer (Chair); the President-Elect; and one other member of the Executive Board who will volunteer to serve a one-year renewable term.

Chair: Sharon Tiberio, Treasurer@WAVMA.org

Communications Committee

This Committee manages the communications among members and others involved with aquatic veterinary medicine. It oversees the listservs, membership lists, publication of WAVMA's quarterly journal *The Aquatic Veterinarian*, e-News, Facebook, Twitter, LinkedIn and other social media accounts.

Chair: Devon Dublin, devdub@yahoo.com

Credentialing Committee

This Committee oversees and administers the Cert-AqV Program for credentialing aquatic veterinary practitioners, and evaluates aquatic veterinary educational programs useful to members.

Chair: Tim Miller-Morgan tim.miller-morgan@oregonstate.edu

Meetings Committee

This Committee oversees and coordinates logistics for WAVMA-organized or sponsored aquatic veterinary educational meetings, including the Annual General Meeting.

Chair: Julius Tepper, cypcarpio@aol.com

Membership Committee

This Committee oversees membership issues to optimally serve individual members and the organization. Co-Chair: Chad Harris caharris24@yahoo.com

Student Committee

This Committee facilitates networking between student members and helps development of student programs and services.

Chair: Justin Krol, justkrol21@gmail.com

Meetings Committee

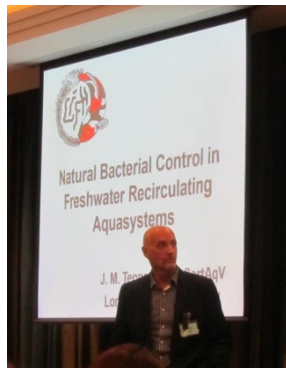
On March 22-23, 2016, a group of WAVMA members converged at the Norton House Hotel and Spa in Edinburgh, Scotland, UK. WAVMA President Nick Saint-Erne, Past-President Chris Walster, President-Elect Laura Urdes and I, along with other WAVMA members from the UK and elsewhere in Europe had the privilege of attending the **Fish Veterinary Society Annual Conference**. WAVMA co-sponsored the event and both Nick and I presented talks at the meeting.



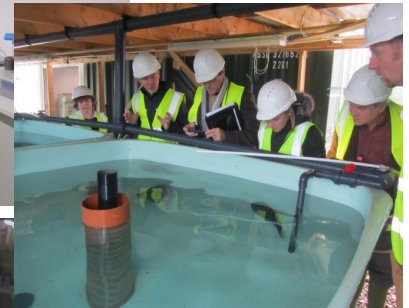
Julius, Laura and Nick at Edinburgh Castle entrance.

The café where J.K. Rowling wrote much of Harry Potter.

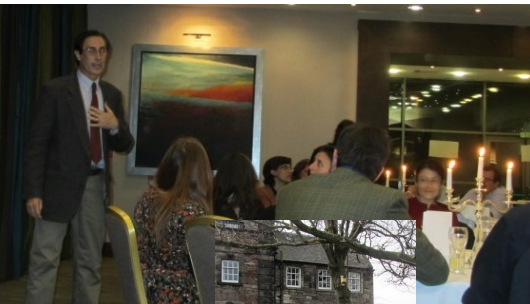
After the FVS meeting, we also had the great pleasure to accompany Dr. Matthijs Metselaar across the Scottish highlands to the west coast to visit an aquaculture research facility in Ardtoe.



Both the scientific and social portions of the meeting with our British colleagues were informative and enjoyable. We had a fabulous dinner at the Norton House Restaurant (including some Remy Martin Louis XIII). And we had some time to tour the Edinburgh Castle and other famous sites!



Lumpsucker fish (above) and algae (right) culture



Pres. Nick edifying the FVS Edinburgh eaters.



Nick, Terry and Laura at Edinburgh Castle.



Terry Tepper, Jane Walster, Laura Urdes, Chris Walster, Nick and Julius Tepper preparing for the next social event.



No trip to Scotland is complete without a visit to a Scotch Whisky distillery, so we went to Ben Nevis distillery and there also saw Highland cattle. All-in-all, a very informative and friendly trip.



The next Meetings Committee event was the **3rd Annual AAFV Conference**, held at the North Carolina Aquarium at Pine Knoll Shores, NC on April 10, 2016.



WAVMA was the sponsor of the dinner and I attended as the WAVMA Executive Board representative. I had the opportunity to meet with our WAVMA and AAFV members there. At the dinner, both AAFV President Myron Kebus and I had a chance to question the membership about ways to promote synergy between our respective organizations.



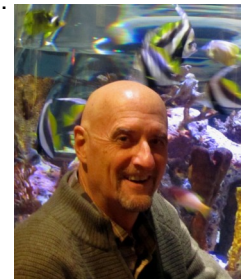
Third Annual AAFV Conference



The **AVMA Conference** is being held in San Antonio, TX from the 5th through the 9th of August, 2016. I will be presenting 5 hours of CE on koi medicine. Other WAVMA presenters will be Drs. Tom Waltzek, Brian Palmeiro and David Scarfe. Our **Annual General Meeting** will be a dinner meeting held on Saturday evening, August 6, 2016 at 7 PM at Biga on the Banks Restaurant, 203 S Saint Mary's Street, San Antonio, TX 78205. If you will be attending, please let me know as soon as possible as space is limited.

The **WSAVA Congress** will be held Sept. 27-30, 2016 in Cartagena, Columbia. Richmond Loh, sponsored by WAVMA, will be presenting 3 hours of CE on fish disease. Devon Dublin will be there as WAVMA Secretary and representative. If any of our members are planning to attend any of these events or would otherwise like to offer their input, the Meetings Committee would certainly welcome it. Please email me at: cypcarpio@aol.com.

Julius M. Tepper DVM CertAqV
Meetings Committee Chair
cypcarpio@aol.com



WAVMA is on Facebook!



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

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

Search for WAVMA at www.facebook.com.

COMMITTEE REPORTS

Credentialing Committee

The WAVMA CertAqV Program is administered by the WAVMA Credentialing Committee, along with the assistance of other Certified WAVMA members who serve as mentors and adjudicators.

To be credentialed by WAVMA as a Certified Aquatic Veterinarian and utilize the CertAqV honorific, individuals must be a WAVMA member, have a veterinary degree from a nationally recognized veterinary school, college or university and have demonstrated general knowledge and competency in core subject areas that are currently considered necessary to practice aquatic veterinary medicine. Students of a nationally recognized veterinary institution of higher education can register for the program, but will not be certified or entitled to utilize the CertAqV honorific until they graduate.

Individuals that desire to participate in the WAVMA CertAqV Credentialing Program are required to:

- Register for the Program (application at www.wavma.org or contact the [WAVMA Administrators](#)).
- Identify a mentor to assist the registrant through the Program. The potential mentors would be available WAVMA Certified Aquatic Veterinarians.
- Provide the mentor with written evidence of satisfactory completion of each of the core Knowledge, Skills and Experience (KSE) subject areas.
- Be adjudicated by the Credentialing Committee for recognition of completion of all KSE requirements after the mentor has approved the documentation.
- Have the CertAqV certification approved by the WAVMA Executive Board.

The WAVMA Certified Aquatic Veterinarian (CertAqV) program has now certified forty-one aquatic veterinarians. Please welcome our latest Certified Aquatic Veterinarians:

Darren Docherty
Simon Doherty
Kasper Jorgensen
Richard Lloyd

There are an additional twenty-three WAVMA members currently in the process of being certified. For more information, see the WAVMA website: <http://www.wavma.org/CertAqV-Pgm>.

Tim Miller-Morgan, DVM, CertAqV
2016 Credentialing Committee Chair

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Bastos-	Giana	giana.gomes@jcu.edu.au
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Cornwell	Emily	erc58@cornell.edu
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John L. Pitts Aquatic Veterinary Education Awards Program Committee

Support the Next Generation of Aquatic Veterinarians

For more than 10 years, WAVMA has developed and supported many programs to serve the discipline of aquatic veterinary medicine, advancing the profession for the betterment of animals, society at large, and the world we live in. Two of the programs that focus specifically on veterinary students are the WAVMA Aquatic Veterinary Student Externship List and the John L. Pitts Aquatic Veterinary Education Awards Program.

The Pitts Education Awards Program's goal is to assist veterinary students and new veterinary graduates in becoming more involved with aquatic veterinary medicine by providing financial support for activities that broaden their understanding of the varied career opportunities within the field. Since its inception in 2010, the Program has awarded over \$42,500 to 65 veterinary students and recent graduates from 39 colleges and universities across 4 continents. These funds, which have come in the form of small and large donations from individuals and organizations, have helped recipients participate in externships at public, private, and academic institutions and attend conferences, workshops, and short courses all over the world.

The Program was started to honor the late John L. Pitts, DVM, who was passionate about student involvement in the profession and a global approach to aquatic veterinary medicine. His service to the profession began as a veterinary student in 1969 when he helped create a national chapter for the Student American Veterinary Medical Association. John also helped in the formation of the National Association of State Aquaculture Coordinators, the Aquaculture and Seafood Advisory Committee of the AVMA, and he worked tirelessly to shape and encourage the passage of the Minor Uses and Minor Species Act of 2004. To continue John's vision, a small all-volunteer committee comprised of individuals representing private practice, academia, past recipients, WAVMA student members, and the Pitts family work to administer this program.

We encourage WAVMA members to support the next generation of aquatic veterinarians. Your donation, in any amount, to the John L. Pitts Aquatic Veterinary Education Awards Program will allow veterinary students to attend educational programs such as AQUAVET® and MARVET and participate in externships at organizations around the world.



John L. Pitts DVM (1941-2009)

To make a donation and to learn more about this program, please visit:

<http://www.wavma.org/scholarships>
or email PittsEduAwards-Admin@wavma.org.

2016 Program Awardees

The John L. Pitts Aquatic Veterinary Education Awards Program is excited to announce recipients for the 2016 Award Cycle! The following individuals were selected to receive an award from a large pool of applications. Please join us in congratulating them on this prestigious recognition.

2016 John L. Pitts Scholar:

Christina McKenzie;
University of Saskatchewan (Canada)

Other Awardees:

John Griffioen; North Carolina State University (USA)
Lukas Huber; Vetmeduni Vienna (Austria)
Sangwha Kim; Seoul National University (South Korea)
Meghana Pendurthi; University of Pennsylvania (USA)
Sarah Wahlstrom; The Ohio State University (USA)
Tatiana Weisbrod; Cornell University (USA)

WE NEED YOUR HELP!

This Program relies on contributions from WAVMA members, organizations, sponsors, and others that support a well-trained aquatic veterinary workforce. Donations in any amount help increase the number of students that we can help to find their place in aquatic veterinary medicine worldwide. Please check with your tax advisor to determine if your donation would be considered a tax-deductible expense.

[Donate now!](http://www.wavma.org/donate)

COMMITTEE REPORTS

STUDENT COMMITTEE

WAVMA VETERINARY SCHOOL CHAPTERS

Australia, New Zealand & Micronesia

Murdoch University, [School of Veterinary & Life Sciences](#) (established 2014)

2016 Officers - Ming Jun Lim (President), Cheryl Tan (Vice President), Chermaine Lim (Treasurer), Jia Wen Lim (Secretary); **Faculty Advisors** - Drs. Lian Yeap & Richmond Loh; **Chapter Contact** - [click here](#).

University of Sydney, [Faculty of Veterinary Science](#) (established 2014)

2016 Officers - Ellen Rasidi (President), Arthur Chau (Secretary), Dr. Paul Hick (Treasurer); **Faculty Advisor** - Dr. Paul Hick; **Chapter Contact** - [click here](#).

Canada, Caribbean & United States

Auburn University, [College of Veterinary Medicine](#) (established 2013)

2016 Officers - Kate Butzen (President), Patricia Debow (Vice President), Erika Gibson (Treasurer), Lindsay Lawreck (Secretary); **Faculty Advisors** - Drs. Ray Wilhite & Jack Kottwitz; **Chapter Contact** - [click here](#).

Mississippi State University, [College of Veterinary Medicine](#) (established 2014)

2016 Officers - Elizabeth Works (President), Taylor James (Vice-President), David Mills (Secretary/ Treasurer); **Faculty Advisor** - Dr. Wes Baumgartner; **Chapter Contact** - [click here](#).

Ross University, [School of Veterinary Medicine](#) (established 2015)

2016 Officers - Bec Crawford (President), Larissa Menke (Vice President), Kate Guiremand (Secretary & Social Media Chair), Robin Sayres (Treasurer), Erika Brigante (Wetlab Coordinator); **Faculty Advisors** - Drs. Don Bergfelt & Mark Freeman; **Chapter Contact** - [click here](#).

Tuskegee University, [School of Veterinary Medicine](#) (established 2012)

2016 Officers - Jacqueline Elliott (President), Jennifer Algarin (Vice President), Jennifer Algarin (Secretary), Aaron Judson (Treasurer), Ayxa Rosado (Historian), TBD (Fundraising Chair); **Faculty Advisor** - Dr. Kenneth Newkirk; **Chapter Contact** - [click here](#). View the Chapter's [Facebook](#) page.

University of Florida, [College of Veterinary Medicine](#) (established 2013)

2016 Officers - Haley Violetta (President), Riley Shugg (Vice President), Kaylee Brown (Treasurer), Megan Joyce (Secretary); **Faculty Advisor** - Dr. Tom Waltzek; **Chapter Contact** - [click here](#).

University of Georgia, [College of Veterinary Medicine](#) (established 2015)

2016 Officers - Kristina Pascutti / Laura Burns (Co-Presidents), Sara Collins (Vice-President), Jaclyn Levin (Treasurer); **Faculty Advisor**, Dr. Alvin Camus; **Chapter Contact** - [click here](#).

University of Minnesota, [College of Veterinary Medicine](#) (established 2016)

2016 Officers - Sarah Knowles (Chair), Angela Jackson (Secretary); **Faculty Advisor** - Dr. Amy Kizer; **Chapter Contact** - [click here](#).

University of Tennessee, [College of Veterinary Medicine](#) (established 2012)

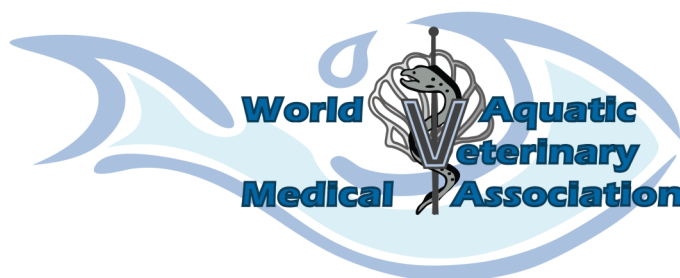
2012/13 Officers - Wesley Siniard & Grace Normann (Co-Presidents), Krista Lipe (Vice President), Carrie Dobey (Secretary), Samantha Schraith (Treasurer), Bree Dell (Wetlab Coordinator); **Faculty Advisors** - Dr. Michael Jones & Dr. Debra Miller; **Chapter Contact** - [click here](#). View the Chapter's [Facebook](#) page or [website](#).

University of Wisconsin-Madison, [School of Veterinary Medicine](#) (established 2014)

2016 Officers - Katherine Hausmann (President), Nikki Wuestenhagen (Vice President), Geoffrey Gieni (Secretary), Jenna Newman (Treasurer), Jenna Epstein (Activities Coordinator); **Faculty Advisor** - Dr. Mike Collins; **Chapter Contact** - [click here](#).

Western University of Health Sciences, [College of Veterinary Medicine](#) (established 2014)

2016 Officers - Andrew Switaj (President), Alexis Wohl (Vice President), David Abolnik (Secretary), Hali Jungers (Treasurer); **Faculty Advisor** - Dr. Suzana Tkalcic; **Chapter Contact** - [click here](#). View the Chapter's [Facebook](#) page.



COMMITTEE REPORTS

WAVMA Website Links

Simply click on a program link for more information.

[The Aquatic Veterinarian](#) - a quarterly publication with news, peer-reviewed contributions, clinical cases, jobs, meetings & more

[Member Directory](#) - a members-only tool to locate other members and for vet students to locate mentors

[Image Library](#) - useful for member's presentations, diagnostic interpretations & other uses

[Video Library](#) - useful links to videos that help members and others understand aquatic veterinary techniques & issues

[WebCEPD Program](#) - live & recorded webinars, courses and presentations (for CEPD credit)

[PubCEPD Program](#) - a members-only program to read & review peer-reviewed clinical publications for CEPD credit (in development)

[CertAqV Program](#) - a program identifying & certifying veterinarians with competency in core subject matter necessary for practicing aquatic veterinary medicine

Leadership Roles - the opportunity to serve on any WAVMA Committee, or being nominated for a position on the Executive Board to help develop programs & set future directions (contact the [Program Administrators](#) if interested)

[Clinical Corner](#) - a video series of actual clinical cases with Q&A and discussion

[John L. Pitts Aquatic Veterinary Education Awards Program](#) - provides financial support for vet students & new graduates to increase their exposure to aquatic veterinary medicine

[Student Chapters](#) - assistance & support for focused groups at veterinary schools

- **Clinical Abstract Database** - a searchable source of publications on a wide variety of clinical issues (in development)

[Employment Opportunities](#) - accessible to members only, on available aquatic veterinary jobs

PRIVILEGES & BENEFITS OF WAVMA MEMBERSHIP

Aquatic Veterinary e-Learning

Supporting WAVMA's WebCEPD, PubCEPD, CertAqV & Clinical Cases Programs.



Enjoy on-line *e-Learning* programs & courses to advance your knowledge & skills

Get continuing education credit through *Web-CEPD, PubCEPD & Clinical Corner*

Discover core knowledge, skills & experience needed to become a WAVMA Certified Aquatic Veterinarian (*CertAqV*)

Receive *discounted* subscriptions to publications & meetings

Utilize *WAVMA's picture & video libraries* for your own presentations

Join *listservs* to discuss clinical cases & other issues

Mentor & be mentored to expand your and other's aquatic veterinary skills

Publish your articles in WAVMA's quarterly journal: *The Aquatic Veterinarian*

Find world-wide externships, internships, residencies & jobs in all aquatic vet areas

Access *Member Directories* & have your Clinic/Hospital listed on-line

Benefit from *Educational grants* for vet students & new veterinary graduates

Form & participate in *veterinary school chapters* throughout the world

Participate in veterinarian and client surveys

Help build additional member programs by serving as an Officer, Director or Committee Member

STUDENT COMMITTEE

Student Profile: Megan Strobel

Megan Strobel is a rising fourth-year veterinary student at the University of Florida College of Veterinary Medicine (UF CVM). She became involved in WAVMA during the inaugural year of the UF WAVMA Student Chapter, hoping to learn more about the field of aquatic veterinary medicine as well as to connect with like-minded students and professionals around the world. The following year, she served as the president of the UF CVM WAVMA Student Chapter and is currently serving as Vice-Chair of the WAVMA Student Committee. She hopes that through the Student Committee she can help other students learn how to get involved in aquatics.

When she was little, Megan had always dreamed of becoming a marine biologist, hoping to spread an interest in ocean conservation to her peers. She followed the orca Keiko's journey through Iceland with hopeful optimism and was fortunate to talk with Jean Michel Cousteau about Keiko at an event. Megan received her SCUBA certification at 12 years old, hoping to further immerse herself (literally) in the world she loved. As her interests in biology and medicine evolved in high school, she hoped to combine her interest in medicine, conservation, and marine biology into a career in aquatic animal health. In college, she began conducting research in manatee ophthalmology with Dr. Jennifer McGee and was ecstatic when she was able to attend a USGS/UF/FWC manatee health assessment and see aquatic animal and conservation medicine at its best. At that moment, seeing Drs. Mike Walsh and Craig Pelton work, Megan *knew* that a career in aquatic animal health was for her.

Once she started veterinary school, she became involved in the Aquatic Animal Health program at UF CVM - taking coursework in conservation issues, diseases of warm water fish, and marine mammal health. In 2014, she started a research project with her mentor, Dr. Walsh, which aimed to identify behavioral changes associated with hearing loss in odontocetes. Megan recently presented this research at the International Association for Aquatic Animal Medicine conference.



Assisting with auditory evoked potential testing on a dolphin as part of my hearing study. Photo credit: Dolphin Research Center.



As a vet tech intern at Sea Life Park Hawaii.

Through her research, she has met many amazing animal trainers, managers, vet techs, and veterinarians with very different experiences, but all with an overwhelming, inspiring love for the animals and the field. She hopes that one day she can spread her passion for these animals in the same way these people have inspired her.

Continuing on conservation, she became involved in marine animal strandings and has participated in the rehabilitation of stranded pilot whales in the Florida Keys, as well as of a *Stenella* calf at the Clearwater Marine Aquarium.

So as not to ignore the fish, as the president of UF CVM's Aquatic Animal Health Club and WAVMA Student Chapters, Megan founded the Fish Team at the University of Florida. The team aims to teach students how to care for fresh and saltwater fish tanks by maintaining the tanks around the school. She also has her own "Gilligan's Island" themed 20-gallon saltwater tank at home that she has established as an aquaculture-only tank. She currently has two clownfish (Gilligan and Skipper), one neon goby (MaryAnn) and an elusive peppermint shrimp (The Professor).

Megan is currently an extern at the Vancouver Aquarium with Drs. Martin Haulena and Karisa Tang, learning a lot about aquatic animals from shrimp to belugas and everywhere in-between! She will then continue on to Sea Life Park in Hawaii with Dr. Bethany Doescher. Megan previously completed a veterinary technician internship in 2012 at Sea Life Park and was eager to return to learn more! She has immensely enjoyed her time so far in aquatic animal health and aspires to continue working in the field in any way that she can - whether that's in an aquarium or at a rescue/rehabilitation center. Outside of aquatics, she really enjoys small animal general practice and dermatology.

At a freshwater turtle sampling capture, organized by Dr. Peter Meylan from Eckerd College.

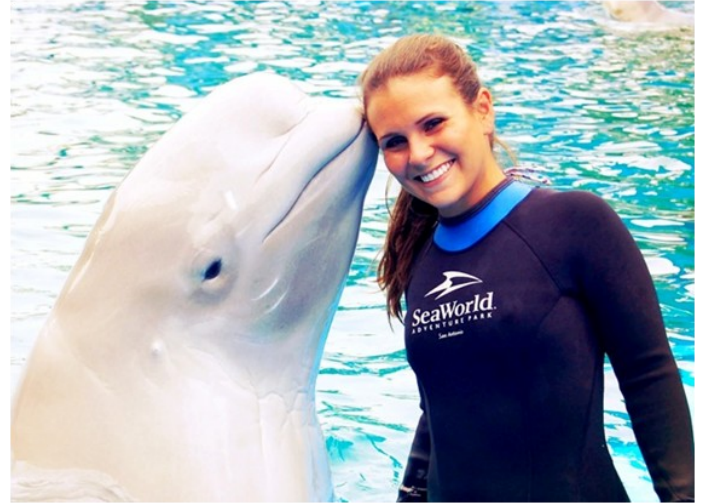


STUDENT COMMITTEE

Student Profile: Anna Penacchi
 Texas A&M University - Class of 2018

My name is Anna Pennacchi. I am a third year veterinary student at Texas A&M University. I was previously the Marine Chair and now Vice-President of our Zoo, Exotics, and Wildlife Club. My interest in aquatic veterinary medicine stemmed from shadowing the veterinarian at Dolphin Quest Hawaii during a marine mammal training internship. Shortly after, I began working on a research project studying the health of bottlenose dolphins in the Galveston Ship Channel.

I have volunteered with penguins and pinnipeds at Moody Gardens Aquarium and assisted with cetacean necropsies at the Texas Marine Mammal Stranding Network. Through attending the International Association for Aquatic Animal Medicine (IAAAM) Conferences since undergrad, I have been fortunate to meet aquatic veterinarians around the world and shadow at various facilities. Last summer, I participated in MarVet Cayman. This summer I will be volunteering with pinniped rehabilitation at Channel Islands Marine & Wildlife Institute (CIMWI) and with exotics at Three Ring Ranch in Kona, Hawaii.



My favorite aquatic experiences have been assisting with a cetacean artificial insemination, coordinating a fish anesthesia lab, and watching the birth of a dolphin underwater at Dolphin Quest Hawaii. My hobbies include traveling, water sports, and cooking. My career goals include business ownership, aquatic veterinary research, and clinical practice. I look forward to working with the WAVMA Student Committee!

When and why did you first become involved with WAVMA?

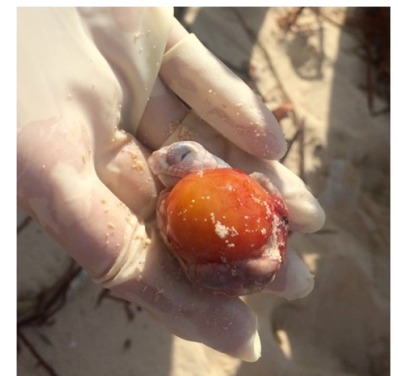
Sophomore year of vet school, recommended by colleagues at other schools and Dr. Chad Harris.

What sparked your interest in aquatic animal health?
 Shadowing the veterinarian at Dolphin Quest Hawaii and attending IAAAM conferences.

What externships or aquatic activities have you done?
 Marine Mammal training at Dolphin Quest Hawaii
 MarVet Cayman
 Moody Gardens Aquarium Volunteer
 Texas Marine Mammal Stranding Network Volunteer
 IAAAM Conferences
 Bottlenose dolphin research in Galveston, Texas
 Shadowed veterinarians at SeaWorld, Mystic Aquarium, L'Oceanografic, The Marine Mammal Center



Anna Pennacchi
annapennacchi@yahoo.com



2016 Pitts Education Awards Program Report Hong Kong Ocean Park Internship

Sangwha Kim DVM (2016 Graduate, Seoul National University, College of Veterinary Medicine)

Because of my special interest on reptiles and fishes, I tried to find some chances to have internships in aquariums and research centers seeking for opportunities to learn about them. Internship with Hong Kong Ocean Park veterinary team was one of the chances I got in this effort. Since veterinary medicine schools mainly teach about mammals, this opportunity was valuable in that I could learn more about exotic animals, including reptiles and fishes.

Hong Kong Ocean Park was built in 1977 as a place for entertainment, education and conservation of many aquatic and non-aquatic animals. Various aquatic animals, including mammals, reptiles and fishes, are on exhibit and cared for by staff, who are also helping with their reproduction. Of course there were many non-aquatic animals as well, and since there were diverse species, I could experience various medical cases through this internship. I was particularly interested in the cases of reptiles and fishes amongst them.

A Chinese sturgeon with chronic ascites was the most interesting case, since this was the first time I saw a biopsy of a fish liver. It was treated and cared for over months with medication, but it became worse. Within the ascites was a few *Candida*, acid fast bacteria and ciliates, but medication could not reduce them. So we thought there might be some not-yet-known primary reason and conducted a liver biopsy to get to know what it was. It turned out that liver was quite damaged and people were discussing about euthanasia after this test result. Unfortunately, my internship was over before knowing the conclusion of this case, but it was really interesting.

There was another case with a few golden fishes in a same tank that died serially. Doing necropsy with these corpses, I learned basic necropsy methods for fishes. Before starting the necropsy, one should get the information about the situation when it died. Most basically, the corpse should be kept in a good condition by refrigerating, not to be frozen or autolyzed. The necropsy started with external examination looking for the discoloration, loss of scales, external parasites, masses, wounds or other abnormalities. Tissue samples should be taken from skin, gill or any proper sites during the necropsy, before the target part becomes contaminated. Normally, if there is an abscess, bacterial culture is recommended. Then one can open the abdomen of the fish and check the internal organs.

I also learned about basic examination methods for snakes from the chief veterinarian, Dr. Paolo. In fact, this was the most valuable time during this internship since this was a very rare chance for a student and also was the first time for me to learn intensively

about snakes. I learned from very basic things like how to handle snakes, to external examination methods, including sexing. I also learned how to get X-rays and ultrasonography images from snakes. Interpretation of the images taken from normal snakes was not easy as I guessed. I also learned about common problems of snakes, like abscess in front of the eye ball, pneumonia or external parasites – how a vet can get to know the sign of those situations and how to deal with them.

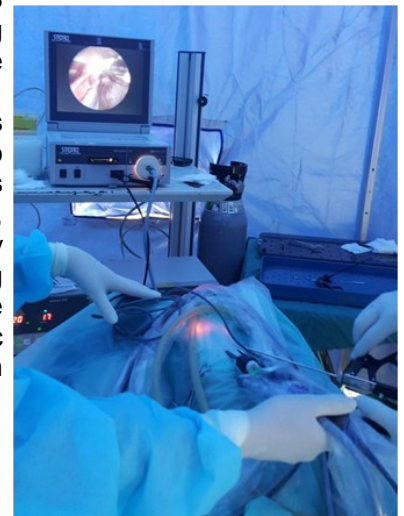
In addition, I helped in the blood collection from crocodiles, endoscopy of green sea turtle, blood collection and getting ultrasonography images from marine mammals, and TNR (trap, neuter and release) of wild monkeys in Kam Shan country park. With these whole processes, I learned the fact that a veterinarian must teach detailed information about diseases and treatment methods to the staffs who are interacting with animals while they are working, since those who are facing the animals everyday are not veterinarians.

I am planning to enter a graduate school related to aquatic animal medicine in the future and will study and research about them. With this internship in Hong Kong, I learned how to do necropsy and basic examination for fishes and reptiles. This experience will be great nutritive material to my future study about those animals. So the 18 days in Hong Kong really was a valuable time for me.

I want to express my appreciation to those who made this internship possible, both the veterinary team in Hong Kong Ocean Park, and the John L. Pitts Aquatic Veterinary Education Award Program.



Crocodile blood sampling



Neutering a Monkey

From AqVA to WAVMA: The Journey Begins

(Reflections from WAVMA's First President)

By **Peter Merrill**

In late 2006, after about 2 years of discussions, Drs. Colin Johnston, Peter Merrill, Tim Miller-Morgan, Dušan Palić, Julius Tepper, A. David Scarfe, and Chris Walster volunteered as 'facilitators' to help further the involvement of veterinarians in aquatic animal medicine. Among this group, there was broad and deep international representation in the food animal, ornamental/pet, research, corporate and government sectors of aquatic animal medicine.

The facilitators' initial task was to develop and distribute a broad Concept Document about aquatic animal medicine, and to simultaneously solicit inputs from over a dozen existing veterinary-oriented groups that were working with aquatic animal medicine/species in various locations around the world. From that outreach, and after much additional internal discussion, in 2007 these seven facilitators subsequently formed the Executive Board of what was originally known as the Aquatic Veterinary Association (AqVA), soon re-named as the Aquatic Veterinary Medical Association (AqVMA); and which eventually morphed into the much more acronymically-pronounceable *World Aquatic Veterinary Medical Association*, or WAVMA.

WAVMA's first year was filled with activities in both the prosaic and the sublime realms. In addition to elucidating the group's overall and specific Missions, a tremendous amount of perfunctory (but essential) organizational legwork needed to be accomplished, including setting up articles of incorporation, dealing with tax status, developing by-laws, coming up with a budget, setting up Membership structures, forming Committees, and—most importantly—incorporating a global focus to attract as many diverse new members as possible to further the objectives that were (and are) germane to WAVMA's Mission. That preceding sentence summarizes the nearly continuous activities of 7 dedicated and capable aquatic animal veterinarians working cohesively as a Board of Directors for a splinter organization seeking to become a unifying force for a profession-within-a-profession....no small feat in any type of organizational paradigm! Without the many years of cumulative professional, organizational, regulatory, and even business experience and expertise that WAVMA's original Board of Directors brought to the table, the results of that first year's activities would likely have been much more modest.

Although there were some inevitable moments of catfish-herding, the WAVMA Board was remarkably unified during the early/formative years of 2007-08 in terms of consolidating its perspectives and objectives, and remarkably productive in terms of the resulting

outputs. The latter included the formation and deployment of a number of functional committees, and the development of several important informational access platforms, the foremost arguably being the WAVMA internet website.

In the ensuing years to date, and through the additional efforts of some of the world's leading aquatic animal veterinarians, either as WAVMA Directors or as Members, WAVMA has steadily grown in membership and diversity; has initiated an internationally-recognized certification program for aquatic practitioners; established many new and interesting continuing-education opportunities; supported membership of Student chapters; and has very largely succeeded in becoming the world's leading voice for veterinarians working or desiring to work in the still-developing field (s) of aquatic animal medicine. Along the way, WAVMA has also broadened its social media profiles and has strategically aligned (or re-aligned) itself with other important aquatic animal entities, such as the World Veterinary Association, the American Veterinary Medical Association, and others in order to maximize its reach while minimizing expenses.

Many challenges to aquatic animal medicine still exist (including among others the lack of available legal or approved therapeutants, cumbersome and unharmonized national and international regulatory oversights, and non-veterinary health management paradigms for aquatic animal production systems); but through WAVMA's continuing Member and Board-driven efforts, aquatic animal practitioners and students worldwide have interesting, accessible and effective means of sharing their ideas and pursuing solutions, pathways that simply did not exist before WAVMA's formation. Kudos to the group on its 10th year of operation!



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

10 Years of Progress: Where WAVMA came from, where we are now, and where we might go!

By **A. David Scarfe PhD, DVM, MRSSAf, CertAqV**
(WAVMA Parliamentarian)

Some wise sage once said “look back on your history, to see what your future may bring.” As WAVMA enters its second decade it’s important to reflect on how we started. Perhaps it will provide some insights to where we are heading. Without question, it has been an arduous, but very rewarding journey to be part of the fastest growing discipline in veterinary medicine.

It all started more than 20 years ago. Aquaculture was maturing as an important and growing industry; today we all recognize it as producing more animal protein than any other farmed species, which will be pivotal in feeding 9 billion people in the next few decades. Tropical fish and other “ornamental” animals continued to dominate “pet” ownership worldwide. More and more, animal health and diseases were being recognized as major obstacles – some resulting in catastrophic results.

Government agencies began developing regulations to prevent and control diseases. International bodies like OIE and FAO started to set guidance for countries. Pharmaceutical companies started recognizing untapped markets for drugs and biologic. And while academic research had produced abundant publications on diseases, diagnostics, treatment, and other animal health related issues, what was needed was a knowledgeable and skilled veterinary workforce to deliver services to aquatic animal industries, producers and owners.

Some aquatic-focused non-governmental organizations emerged during the 1990s that interested veterinarians, but too often they only focused on small geographical regions or single countries, or only dealt with some species like finfish or marine mammals. While a small amount of attention was given to introducing aquatic-focused topics in veterinary curricula, little attention was being given to the primary veterinary service providers – veterinarians in private practice.

While lots of ideas were bantered around about forming an organization to address this need occurred prior to 2001, serious discussion swelled and in 2004 the idea of forming a global “Aquatic Veterinary Coalition” was considered to be the most viable option. The initial thought was to bring together about 14 veterinary organizations around the world known to be involved with aquatic veterinary medicine, to work together. This objective still dominates discussion.

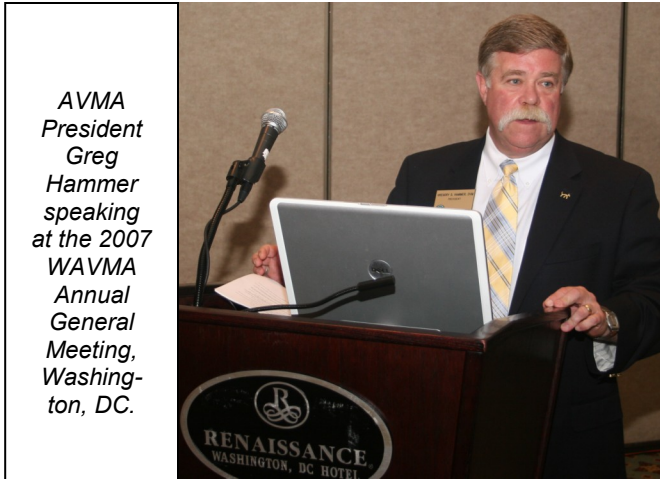


*WVA President
Leon Russell (L)
and WAVMA
President
Peter Merrill (R)
at the 2007
WAVMA
Annual General
Meeting,
Washington,
DC.*

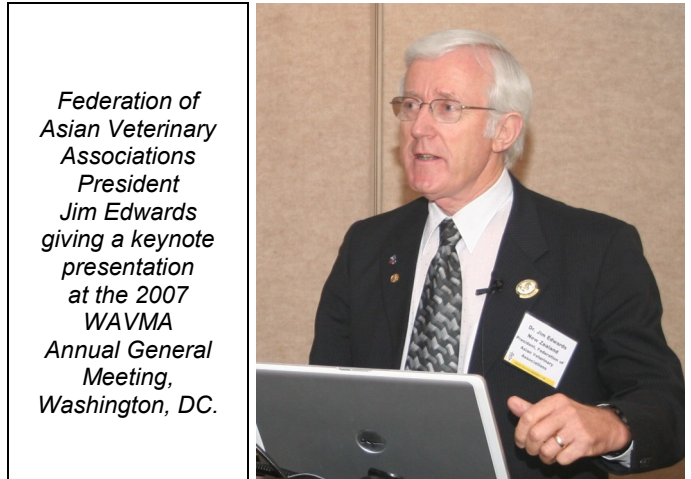
However, the real turning point came in July 2005 at the American Veterinary Medical Association (AVMA) Convention in Hawaii, when a core group of veterinarians from several countries committed themselves to forming a legally recognized association. Together they worked to organize a workshop and meeting during the September 2006 International Symposium on Aquatic Animal Health (ISAAH) to discuss what was needed. At the ISAAH meeting in San Francisco, several individuals pledged their time to decide how an organization might be structured, developing a mission, objectives, and bylaws. The initial membership dues of the first eight individuals was used to cover initial costs for developing a website and filing incorporation documents, so the “Aquatic Veterinary Association” (AqVA) could be formally and legally recognized to provide services to aquatic veterinarians around the world. These individuals formed the initial Board or Directors. In early 2007 Articles of Incorporation were filed, with AVMA serving as the “Agent of Record,” and by March of 2007, when AqVA was legally recognized as a not-for-profit professional organization, membership had grown to 16.

To ensure the initial mission, objectives and bylaws appropriately appealed to the majority of aquatic veterinarians, the first Annual General Meeting was organized and held in conjunction with the 2007 AVMA Annual Convention in Washington DC. At the AGM business meeting, several important things happened: general membership (which had grown to about 50 members) ratified the mission, objectives and bylaws; voted to change the name of AqVA to the World Aquatic Veterinary Medical Association (WAVMA); initiated the first committees to help develop WAVMA membership programs; and, elected those that would serve as Officers and Directors in 2008.

Equally important at this first AGM, leaders in global veterinary medicine, including Leon Russell (World Veterinary Association President), Greg Hammer (AVMA President), and Jim Edwards (Federation of



*AVMA
President
Greg
Hammer
speaking
at the 2007
WAVMA
Annual
General
Meeting,
Washing-
ton, DC.*

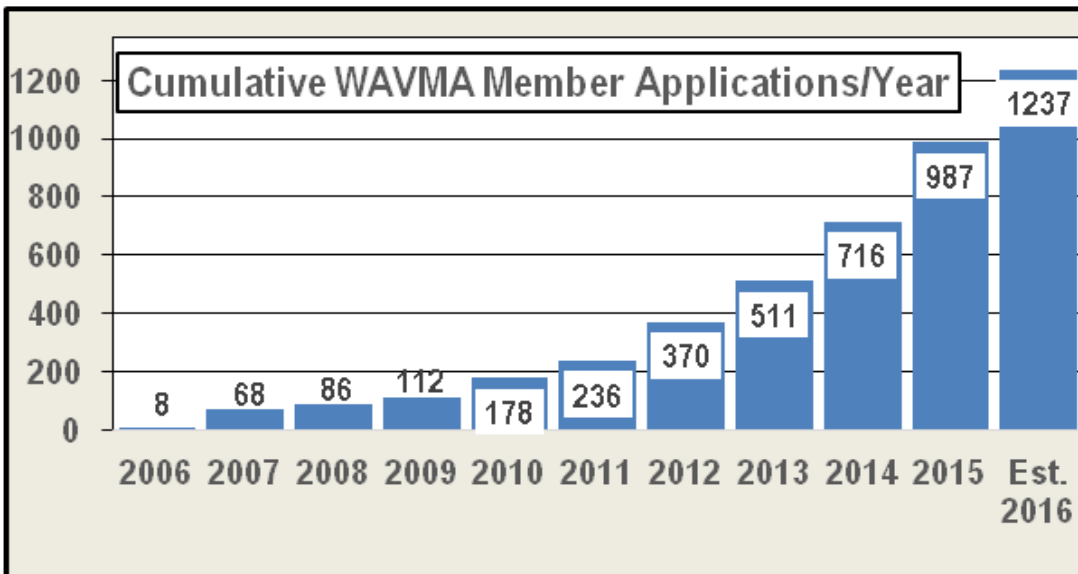


*Federation of
Asian Veterinary
Associations
President
Jim Edwards
giving a keynote
presentation
at the 2007
WAVMA
Annual General
Meeting,
Washington, DC.*

Asian Veterinary Associations), gave keynote presentations about the importance of aquatic veterinary medicine around the world. These were followed by panel discussions that included Nick Blayney (British Veterinary Association), Carol McClure (Eastern Aquaculture Veterinary Association), Hamish Rodger (UK Fish Veterinary Society), Leigh Clayton (Association of Reptile and Amphibian Veterinarians), Julius Tepper (International Association Aquatic Animal Medicine), Diane Sheehan (Australian Veterinary Association) and Jim Edwards (FAVA), who all emphasized the importance of a global organization to serve the interests of aquatic veterinarians and the veterinary profession, and ensure that this discipline grows to meet the needs of producers, industries and other stakeholders. This early interaction with national and international veterinary organizations turned out to be pivotal in expanding WAVMA's global reach, and set the tone for future collaboration with veterinary organizations around the world.

Over the next 12 months, these individuals helped set the direction for WAVMA by filing legal documents to change the organization's name and for WAVMA to be legally recognized as a tax-exempt organization, developing the WAVMA logo to brand and emphasize the diversity and importance of aquatic veterinary medicine, strategizing and developing an annual budget to develop programs important for members, refining the WAVMA website, planning future educational meetings, refining the quarterly newsletter, developing a listserv to allow members to discuss any issues, and a number of other activities suggested by members. By the end of 2007 membership had grown to 68 members.

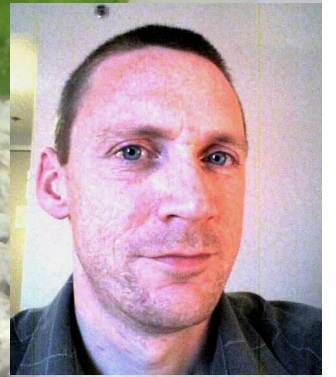
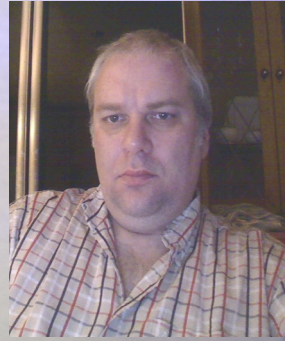
Since these early days WAVMA has made great strides. Committees have refined their charges and developed a number of programs that have attracted increasing numbers of veterinarians, veterinary students and veterinary technicians/nurses, and even several non-veterinarians who support WAVMA's mission and objectives. Unquestionably, this increase in membership is clearly indicative of the relevance of WAVMA.



In the next issue of *The Aquatic Veterinarian* I'll outline what WAVMA has done to get where it is now, advances in our programs to help members, and plans for where we might go in the next 10 years.



See photos on page 22 of the eight original 2006 WAVMA members!



Betta photo by Nick Saint-Erne

A gallery of photos of the 8 WAVMA founders:
David Scarfe, Chris Walster, Peter Merrill,
Julius Tepper, Scott Weber, Colin Johnston,
Tim Miller-Morgan and Dušan Palić.

We are Family...By **Richmond Loh**

2014 WAVMA President

What feature binds us together as the World Aquatic Veterinary Medical Association? We are veterinarians, and we have a passion for all things aquatic. But I think we have more in common.

Before the WAVMA, we have all been working in isolation, "pioneering" fish medicine in our own ways. The WAVMA has brought us together, fostering a strong sense of collegiality. In our community, we have members with specialised expertise in pathology, pharmacology, epidemiology, zoo medicine; and people who have published a great deal. We have people who have experienced aquatic veterinary medicine firsthand, who are able to help guide us by sharing their stories. It is this information that is priceless. It has been collected over time, and they are not things that can be bought, or found in books, journal articles, or on Google.

In 2014, I had the honour to serve the WAVMA community as its President, and was able to witness the great amount of work and dedication given to the organisation by members of the various committees. To name a few, there were Dave, Chris, Devon, Nick, Julius, Laura, Sharon, Lydia, Stephen, Mohamed, Dusan, Rob and many, many others. To me, WAVMA is more than an organisation. It is a WAVMA Family. Not only is it made up of so many individuals with a charitable attitude, but it goes beyond that. For everyone who is able to volunteer in the WAVMA, they are also supported by their own family/partners at home. So I would like to thank those people, too.

Now who can say this of any organisation? Let alone, say this of a global organisation? It wasn't until Myron Kebus said something about it to me, that I realised that in the WAVMA, we are actually the greatest fans of each other! The WAVMA is great at picking out the special something of someone, and helping grow that skill or trait, with your own personalised cheer squad. The WAVMA has helped me meet so many people; and to see the world, venturing from the most isolated city in the world (Perth, Australia), to places like Czech Republic, USA, St Kitts & Nevis, Singapore, Thailand, Columbia and Hong Kong. So here's a huge thank you, from me, to my WAVMA Family.

We are all Family!

Something fishy about this vet: Richmond LohAuthor: **Anne Fawcett**

While some vet schools include a couple of lectures on fish medicine and aquaculture, the majority of veterinarians graduate feeling less-than-confident about treating patients with fins. Dr Richmond Loh is one of a growing number of veterinarians devoting this career to aquatic patients – from goldfish, koi and carp to abalone, farmed fish and marine mammals. And it's a colourful career. Loh's work has taken him around the world, and occasionally inside the tanks of his (sometimes very large and intimidating) patients.

"Some can be venomous or dangerous," he said. "Sting rays and lion fish are venomous, sharks have sharp teeth and are huge!"

Incidentally, if you need to perform general anaesthesia on a shark, one method is to kit-up in your wet-suit, select a large syringe full of an appropriately concentrated anaesthetic, pop into the tank with your (hopefully well-fed) patient and "puff it in front of their mouth when they breathe in".

"You may need a couple of doses and sometimes it puts them into an excitatory phase," Loh added.

Loh has had a lifelong interest in fish, but didn't plan a career as a fish veterinarian. He initially considered studying marine biology.

"Everyone said there were no jobs so I did the next best thing, veterinary science." As a new graduate, Loh took up an internship in fish pathology in Launceston, Tasmania. "I was really lucky as from there my interests in fish, pathology and medicine grew."

Fast forward 15 years and Loh is an internationally renowned speaker, teacher and consultant. But much of his case load consists of companion fish. And he has no shortage of clients.

"People with goldfish especially keep them in tanks near the TV or a room where they see them a lot, so they have a lot of contact with their fish and grow attached to them," he said. The most common conditions Loh sees in companion fish are infectious diseases – especially due to failure to quarantine new fish; parasitic diseases and skin tumours.

"The most common surgeries are skin tumour removals in goldfish," he said. "Mainly these are soft tissue sarcomas or fibrosarcomas, most of the time we don't really do further diagnostics, and we just remove the lump."





The most complicated cases usually involve multiple pathogens and developing a treatment regimen when clients (particularly Western Australia's substantial population of "fly-in, fly-out" workers) may be away for extended periods of time and cannot medicate their fish for weeks on end. Loh firmly believes that veterinarians underestimate their abilities to help fish – so much so that many refer fish-owning clients to pet shops.

"There are vets that profess they know nothing about fish but they are unaware that they know more than they think they do," he said. "In our training we learn about many different species and it's not a big stretch to add fish."

Fish shops will often provide free water-testing services to their clients as a public service and to increase product sales, but often advice about treatment of fish diseases is being given without proper diagnostics. Loh believes veterinarians need to do more, to cultivate their skills because we have expertise in diagnostics, pathology, pharmacology and disease management.

Loh would prefer vets to welcome fish clients, or refer to fish vets. Finding a fish veterinarian is as simple as Googling "fish" + "vet". The Fish Vet has representatives located around Australia. Loh also provides aquatic veterinary pathology services to help veterinarians with their fish cases.

"Since graduating I've always provided advice to vets and veterinary nurses who have called me," he said. "After they have done a wet mount and photographed it I usually call them back and we talk about the case."

There is also a global veterinary community in which members of the World Aquatic Veterinary Medical Association (WAVMA) can post questions on the discussion board.

"There's usually someone awake somewhere in the world who can help you along with a case."

Loh has helped countless veterinarians with fish cases, and is a keen volunteer. He is a former president

of the WAVMA, and has volunteered countless hours developed continuing professional development videos.

"At the WAVMA, we are trying to create the world's most comprehensive library of aquatic veterinary material," he said. "It takes a lot of time and effort for everyone involved including the presenters and moderators." There are many benefits to working in a relatively new and emerging field.

"There is a real opportunity to be at the forefront of veterinary medicine and be able to make a difference to the way the profession is heading," Loh said. "Because it's a small field, you can actually meet the people who published the textbooks and ask them to sign your book – which is really geeky but really cool."

Loh is committed to passing on his knowledge. Even when studying for his memberships in aquatic animal health he compiled all of the tips he thought would be useful to others into a single document. Once the memberships were under his belt, he published these in "Fish Vetting Essentials" (available for purchase on his website). Along with his other books and DVD on fish vetting techniques, it contains hundreds of practical pearls of wisdom, starting from the very basics like "how do you weigh a fish?".

Incidentally, weighing fish varies according to species and size. Most commonly, placing a tub containing their own tank water on a scale, taring this then weighing with the fish in is the best method, but occasionally luggage scales (while fish sits in the net) need to be employed for larger fish.

Examination of fish is also easy once you know how. Observing fish from a distance (they change their behaviour when they know they're being watched), taking a history from the client, and carefully catching fish are skills we can all develop.

"Catching the fish is the most stressful part of the exam for the fish," Loh said. "I look for evidence of le-



sions and macroparasites. Then I take a gill biopsy and a skin mucus scrape and examine wet mount straight away. Under the scope you're mainly looking for anything that is motile. At the same time, you're examining the gills for evidence of pathology."

Just like dogs and cats, fish can ingest foreign bodies, vomit or experience dermatitis.

"Fish can't scratch so they rub themselves against rocks or the sides of tanks," Loh said.

A common misconception about fish is that they have a short lifespan. This is probably because the average goldfish, according to Loh, survives around one month. It is most unfortunate that many fish succumb to "new tank syndrome" – when the biofilter has not sufficient time to mature, to grow beneficial bacteria that detoxify fish wastes. Given the right conditions, the lifespan of fish can easily exceed that of dogs and cats. An Oscar may live 10-15 years, a goldfish 10-25 years, and koi from 30 to >50 years.

"I've treated fish as old as myself," Loh said, referring to koi in their mid-30's. "I've had a few clients where the original owners, the client's parents, have passed on and the fish are inherited, becoming the only living reminder of those parents. These fish are of huge sentimental value – an heirloom."

Loh takes euthanasia of companion fish very seriously.

"Putting fish in the freezer is not recommended on humane grounds," he said. Loh also frowns upon flushing deceased or moribund fish down the toilet – a not uncommon practice in Australian households.

"If the fish is already dead there is still a risk of filling our waterways with disease," he said. "If the animal is sick, that is poor animal welfare, as toilet water has chlorine in it which burns the gills and fish are then flushed into sewers which have low dissolved oxygen which can cause them to suffocate."

"Usually I place fish in an anaesthetic bath using an overdose of anaesthetic. You may use clove oil (eugenol), Aqui-S (iso-eugenol) or alfaxalone." Loh waits for 30 minutes after opercular movements have ceased then takes a gill biopsy to examine.

"In freshly clipped gills of a live animal you will see blood moving in the lamellae, while it clots in dead animals." Deceased fish can then be buried. Loh is passionate about promoting the welfare of fish.

"One of the problems is that fish are not afforded welfare because people think they are not animals," he said. Another issue in the field of companion fish medicine is the role of non-veterinarians in providing veterinary advice. He hopes to change the current practice of veterinarians referring clients to fish shops by equipping vets with the knowledge they need to diagnose and treat fish.



"There are also a wide variety of over-the-counter drugs including a few antibiotics, which tends to prolong the suffering of fish when treating without a proper diagnosis."

At home, apart from his mammalian family, Loh manages a marine tank, a couple of ponds, and aquaponics in which he grows his own tomatoes and peas [fertilised by fish such as silver perch, rainbow trout, koi, goldfish and barramundi]. And yes, they [fish] are edible.

Dr Loh mentors veterinarians who wish to extend their aquatic veterinary skills. For those with an interest in aquatic veterinary medicine, he recommends joining the WAVMA.

Veterinarians can also undertake their membership examinations in Aquatic Animal Health through the ANZCVS, or may choose to study overseas. Dr Loh recommends Cornell University's AQUAVET program as a short course. Those interested in a MSc, the City University of Hong Kong has combined with the University of Stirling to produce the world's newest post-graduate veterinary course titled, "Aquatic Production and Veterinary Health". Dr Loh has been tasked with teaching the introductory unit. Those who have already have appreciable knowledge, skills and experience in aquatic veterinary medicine may apply for the CertAqV from the WAVMA, in a peer-reviewed process.

Dr Loh's website is <http://www.thefishvet.com.au/>

For information about memberships, visit <http://www.anzcv.org.au/chapters/>

To join the World Aquatic Veterinary Medical Association, visit <http://www.wavma.org/>

To enroll in the Aquavet program, visit <http://www.vet.cornell.edu/aquavet/generalinfo.cfm>

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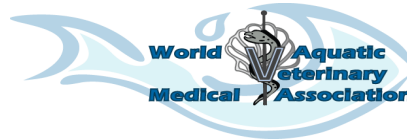
CALL FOR SPEAKERS

Aquatic Veterinary Practice & Aquaculture Production

Aquatic Veterinary Medicine CEPD Sessions



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Call for Speakers
Proposal Submission Deadline
August 20, 2016

Aquaculture America 2017
San Antonio, Texas, USA
February 19-22, 2017

Proposals for 15 or 30 minute oral presentations invited
Of particular interest are presentations dealing with programs, services and tools that enhance aquatic veterinary practice, and fulfill aquaculture industry's and client's needs for increase production, profits and meeting regulatory requirements

To ensure inclusion in this session, speakers should e-mail the following information to Dr. A. David Scarfe (Session Coordinator, dscarfe@ameritech.net) **by August 20, 2016**

- author/s name/s (*indicating the speaker);
- presentation title; and
- indicate the desire for a 15 or 30-minute presentation

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

This session is intended for Veterinary Continuing Education.

Veterinarians attending will receive a veterinary CE certificate of participation.

All abstracts must be submitted online through www.WAS.org by August 24, 2016.

AQUACULTURE AMERICA 2015, WAVMA and AAFV are unable to subsidize registration fees, travel or hotel costs. All presenters are required to pay their own registration, accommodation and travel expenses. WAVMA & AAFV members receive discount registration rates.

AUTHOR'S INSTRUCTIONS

Instructions for Authors and Contributors

While any information relevant to aquatic veterinary medicine might be published, we particularly invite contributions for the following regular columns in *THE AQUATIC VETERINARIAN*:

Colleague's Connection

An article explaining why and how a veterinarian became interested in aquatic veterinary medicine and what that veterinarian has done in their aquatic veterinary career.

Peer-Reviewed Articles

Original research or review of any aquatic veterinary topic. Articles will be reviewed by 3 veterinarians and comments and changes referred back to the author prior to publication. The text for an article begins with an introductory section and then is organized under the following headings:

- Materials and Methods
- Results
- Discussion (conclusions and clinical relevance)
- References (cited in the text by superscript numbers in order of citation).

Clinical Cases

Clear description of a distinct clinical case or situation and how it was resolved. These may be submitted for peer-review. Begin with the signalment (species, age, sex, body weight or length) of the animal or animals, followed by a chronologic description of pertinent aspects of the diagnostic examination, treatment, and outcome, and end with a brief discussion.

Book Reviews

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

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).

News

Brief synopsis or information about aquatic veterinary news published elsewhere. List original source of information.

Legislative & Regulatory Issues

Synopsis or description of emerging legislation or regulations with information on how to access further detailed information or a link to website.

Meetings and Continuing Education and Professional Development (CE&PD) 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.

Jobs, Internships, Externships or Residencies

Description with specific contact information for veterinary student externships and post-graduate internships or residencies at private practices, institutions, universities or organizations. Description of available full or part-time employment for aquatic veterinarians, with contact information.

Advertising

See advertising rates on page 52.

Please send articles, clinical reports, or news items to the editor by the following submission dates:

- Issue 1 – February 15 (published in March)
- Issue 2 – May 15 (published in June)
- Issue 3 – August 15 (published in September)
- Issue 4 – November 15 (published in December)

All submissions should be in 10-point Arial font, single spaced. Submissions may be edited to fit the space available.

We can also use editors to proof-read submissions or review articles. Please contact the Editor if you are interested in assisting.

The World Aquatic Veterinary Medical Association also has opportunities for members to assist with committees. Contact any member of the Executive Board to volunteer to help.



**DO YOU HAVE A STORY TO TELL ABOUT
HOW YOU BECAME
INVOLVED WITH AQUATIC
VETERINARY MEDICINE?**

Send your article (<1,000 words) with pictures to
TAVeditor@wavma.org.

GRAND ROUNDS CASES

Questions & Answers from the WAVMA Listserv (WAVMA_Members-L@wavma.org)

Garlic in Gel Fish Food

Hi everyone,

What do you usually use to increase appetite when fish are medicated through a gelatin diet? Is there anything that can be added to the gelatin diet to make it sink so fish don't need to come to the water surface to feed? The one diet a colleague tried was liquidised squid, water and gelatin powder.

Thanks!

Kind regards,

Sasha

Department of Agriculture, Forestry and Fisheries
(DAFF)

saughs@yahoo.com

Hi Sasha

I use a commercial garlic powder (Australian brand is Value Plus) at the rate of 5 grams per kilogram of gel food. I also add Ascorbic acid (Vitamin C) at the same rate to all foods made up.

Garlic seems to assist with appetite and has been shown to effect monogeneans and Ich (white spot). [An abstract about using garlic to treat fish follows]

Once read a paper where garlic was supposed to effect red blood cells (like in dogs) in fish. However, I certainly have not seen any side effects and have used the above combination for the past 10 plus years.

We took artificial corals and set the gel in those and then sank them down so the gel food was on the bottom, but will depend on the type of fish you are feeding the gels to.

Wishing you all the best,

Regards

Rob Jones

"The Aquarium Vet"

PO Box 2327 Moorabbin,

Victoria, Australia, 3189

www.theaquariumvet.com.au

Efficacy of garlic based treatments against Monogenean parasites infecting the guppy

(*Poecilia reticulata* (Peters))

S. Fridman*, T. Sinai, D. Zilberg

French Associates' Institute for Agriculture and Biotechnology of Drylands, Ben Gurion University of the Negev, Sde Boqer Campus, Be'er Sheva 84990, Israel

Abstract

Monogenean infections of commercially farmed fishes are responsible for significant economic losses. Garlic (*Allium sativum*) is a well-known spice that also possesses anti-microbial and anti-parasitological properties. The current work aimed to test the efficacy of garlic-based treatments against infection with monogenean sp. in the guppy (*Poecilia reticulata*). Clipped sections of tail fins of guppies heavily infected with *Gyrodactylus turnbulli* were exposed to aqueous garlic extract (7.5 to 30 mL L⁻¹) and visually observed under a dissecting microscope. Results revealed that exposure to garlic caused detachment of parasite and cessation of movement indicating death. A positive correlation was seen between garlic concentration and time to detachment and death of parasites, which, at the highest concentration of 30 mL L⁻¹, occurred at 4.1 and 8.6 min, respectively. Bathing in aqueous garlic extract (7.5 and 12.5 mL L⁻¹) was tested in guppies infected with *G. turnbulli*. Prior acute toxicity tests revealed the maximum tolerance levels of guppies to garlic extract to be 12.5 mL L⁻¹ for 1 h. Bathing of infected fish in garlic extract (7.5 and 12.5 mL L⁻¹) significantly ($p < 0.05$) reduced infection prevalence and intensity as compared to the control.

Oral treatments using dry garlic powder-supplemented diet were tested on guppies infected with *G. turnbulli* and *Dactylogyrus* sp. monogenea. Fish were fed with food containing 10% and 20% dry garlic powder for 14 days. Groups fed with garlic supplemented diets showed significantly reduced ($p < 0.05$) mean prevalence and mean intensity of parasites as compared to the control. Dietary application of garlic did not appear to affect palatability. Freshly crushed garlic was added at a level of 1 g L⁻¹ and applied as an indefinite bath for 14 days. This treatment was seen to significantly reduce ($p < 0.05$) parasite prevalence and mean intensity as compared to the control. Histopathology revealed elevated muscular dystrophy in the 20% garlic-fed group, as compared to control. These findings demonstrate the potential of garlic as a natural alternative to currently used chemical treatments for monogenean infections in the guppy.

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Skin Lesions in Koi

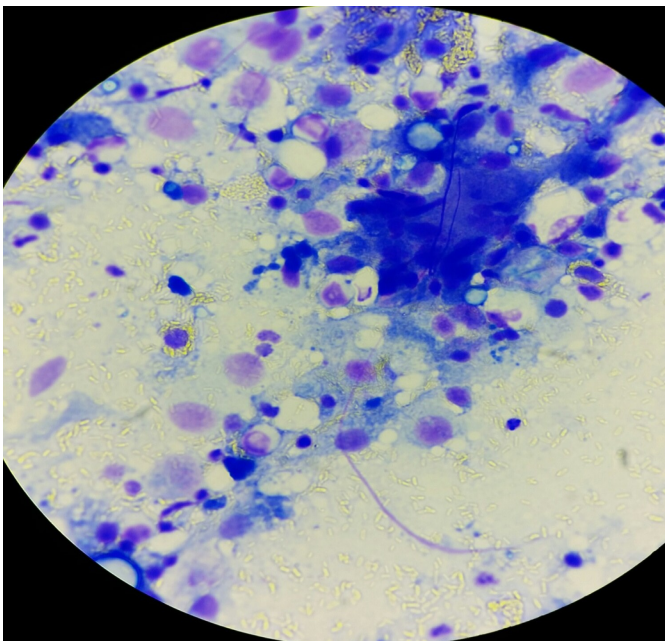
Hi All,

Did any of you diagnosed this skin lesion on koi before? I did Ziehl-Neelsen stain on the tissue but it was negative. No mortality, some gyrodactylus found, water parameters in normal range, temperature about 20°C, koi pond with plants in separate filtration zone. Koi act pretty normal as well, not a really different pond from the more than 2500 ones I've seen.

I have seen numerous cases where it is obvious that the sun plays a certain role in the development of skin lesions in koi and specifically in the non-pigmented areas, but would you think that this would be a bacterial infection primarily or secondarily?

Thanks in advance!

Tim B.



[The **Ziehl-Neelsen** stain, also known as the acid-fast stain, was first described by two German doctors: the bacteriologist Franz Ziehl (1859–1926) and the pathologist Friedrich Neelsen (1854–1898). It is a special bacteriological stain used to identify acid-fast organisms, mainly Mycobacteria.]

This pattern of dorsal dermatitis in doitsu koi is often seen in the spring when they have access to shallow water areas (< 6"). The morning sun warms these areas and the koi gravitate to the warm water. In the larger fish, their whole dorsal surface may be exposed. You may not see them in these areas after the sun is high by mid- morning. Possible air and sun exposure?

Julius Tepper, DVM, CertAqV
Long Island Fish Hospital

This looks like typical UV damage either direct or via photosensitisation. I suspect direct.

There is extensive literature on this in fish. In koi, I wrote this up with Bullock [Bullock, A.M., Roberts, R.J., Waddington, P. & Bookless, W.D.A. *Sunburn lesions in Koi carp*. Vet. Rec. 112: 551.] but there is much more detail in Fish Pathology 4th Edition (Wiley).

Treatment of choice is Virkon Aquatic in the water at 4 ppm to prevent bacterial secondary infection while the epidermis cover develops, which it does quite quickly in non-invaded tissue, long before any scar tissues develop, as epidermal regrowth is urgently necessary for osmotic control. Topical treatment of such extensive lesions is invariably fatal in my experience, but lowering temperature slightly and introduction of shade but not darkness help.

Prof Ron J Roberts FRCVS. FRS(Edin).

Koi in shallow water that is in direct sunlight for extended periods (no shade) may suffer from sunburn. The lesions appear as hyperemia (redness) of the skin, usually the white parts, and blistering along the margins of the scales on the back. Severe cases may result in ulceration of the skin.

Treatment is to increase the depth of the water if possible, and to provide shade over the pond. Temporarily using large pieces of styrofoam or other floating objects in the pond will provide immediate sources of shade.

Nick Saint-Erne, DVM, CertAqV

Sunburned koi photo from Advanced Koi Care



**Research Report: WAVMA 2015 John L. Pitts
Aquatic Veterinary Education Award Recipient**

**Prevalence, Antibiogram and Risk Factors of
Salmonella in Indian Carps (*Labeo rohita* and
Cirrhinus mrigala) Raised in Fish Ponds of
Chitwan, Nepal**

Dr. Sirjan Bastola

MVSc Student, Medicine & Public Health, Agriculture and Forestry University, Chitwan, Nepal

Introduction

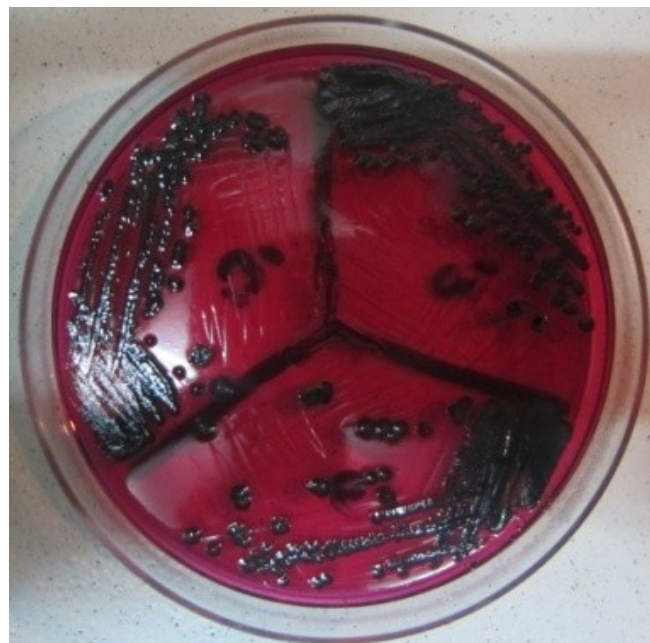
Research work was carried out to determine the prevalence, antibiogram and risk factors of *Salmonella* isolated from Indian carp species (*Labeo rohita* (Rohu) and *Cirrhinus mrigala* (Naini)) raised in fish ponds of Chitwan district of Nepal. The research sites for the collection of fish were three different places in Chitwan: Taadi (eastern part), Chanauli (western part) and Maadi (southern part), while the laboratory works were carried out at Veterinary Microbiology Laboratory of Agriculture and Forestry University (AFU), Chitwan, Nepal. The research period was from January, 2016 to March, 2016.

Methods and Methodolgy

A total of 90 live fish were collected from 15 different fish ponds of Chitwan, Nepal. The 5 fish ponds were selected randomly at each of 3 different places of Chitwan: Taadi, Chanauli and Maadi. Three individual fish of each of the two species, *L. rohita* and *C. mrigala*, were collected from each pond. The live fish were transported by means of water in a shipping container to the Veterinary Microbiology Laboratory of Agriculture and Forestry University (AFU), Chitwan, Nepal. The live fish were then euthanized humanely by decapitation and pithing techniques.

The skin, gills, liver and intestine were aseptically collected from the fish with the help of a sterilized knife and then pooled using sterilized forceps. The pooled sample of skin, gills, liver and intestine was then processed according to ISO 6579:2002 protocols.

The subsequent procedures involved Non-selective Pre-enrichment (Buffered Peptone Water), Selective Enrichment (Rappaport-Vassiliadis Broth), Isolation (Xylose Lysine Deoxycholate Agar), Biochemical Confirmation (Triple Sugar Iron Agar, Indole Test, Methyl Red Test, Voges-Proskauer Test, Citrate test, Oxidase Test and Catalase Test) and Serological Confirmation (Slide Agglutination Test: O-antisera and H-antisera). The Antibiotic Sensitivity Pattern was undertaken by disc diffusion method following CLSI guidelines. The diagrams were constructed by using MS-Excell 2007.



Pure colonies of Salmonella in XLD agar



TSI and IMViC Tests of Salmonella

Results

The prevalence of *Salmonella* in *L. rohita* was 20% while in *C. mrigala* was 24.44%. The overall prevalence of *Salmonella* was 22.22%. The prevalence of *Salmonella* in the fish from the ponds closer to the livestock husbandry practice was found to be higher (14.44%) than the farther ones, which were 7.77%.

Among the 7 antibiotics used in the study, the most sensitivity to an antibiotic was with Levofloxacin (80%), followed by Ciprofloxacin (75%), Gentamycin (70%), Enrofloxacin (60%), Amikacin (60%) and Kanamycin (15%). *Salmonella* did not show any sensitivity to Amoxicillin.

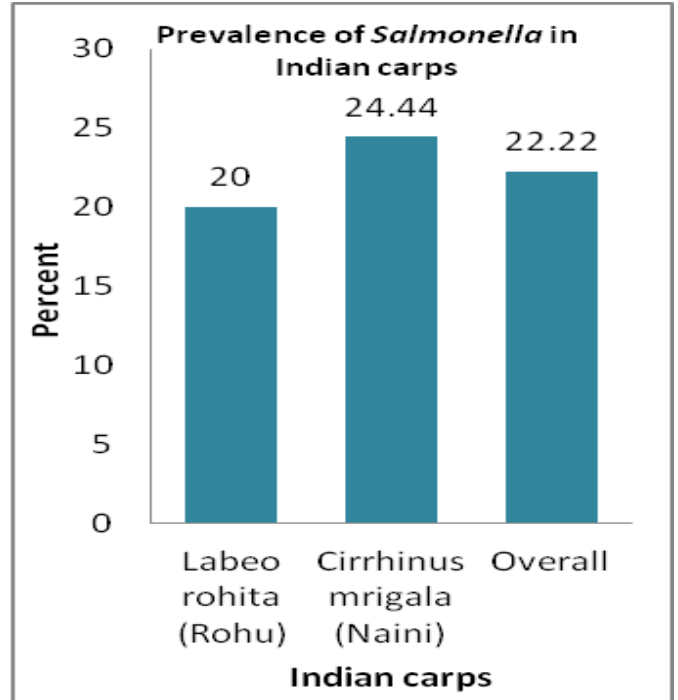


Observation of test results

Salmonella was highly resistant to Amoxicillin (85%) followed by Kanamycin (40%), Enrofloxacin (20%), Amikacin (20%) and Gentamycin (5%). *Salmonella* was found not to show any resistance to Ciprofloxacin and Levofloxacin.

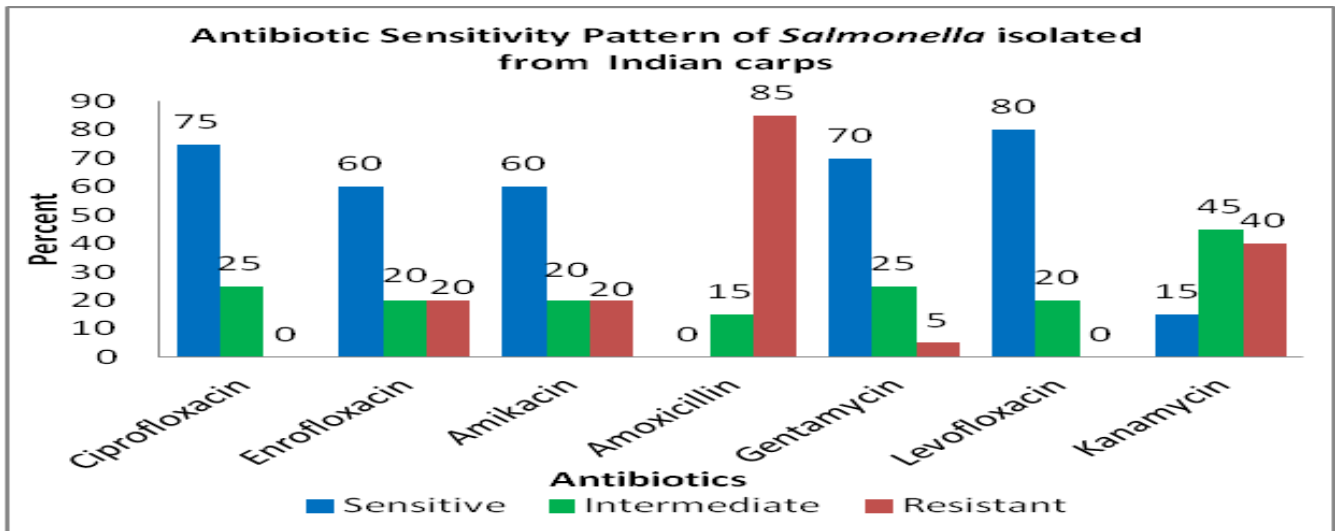
Funding

This research work was financially supported by John L. Pitts Aquatic Veterinary Education Award Grant 2015 received from World Aquatic Veterinary Medical Association (WAVMA).



Acknowledgement

I would like to express my sincere gratitude to Prof. Ishwari Prasad Dhakal, Prof. Madhav Kumar Shrestha, Assoc. Prof. Hom Bahadur Basnet, Asst. Prof. Narayan Prasad Pandit and Asst. Prof. Rebanta Kumar Bhattarai for the continuous guidance and support to accomplish this research. I am equally thankful to Dr. Sunita Shrestha, Dr. Rishi Ram Sapkota, Dr. Sabina Mishra, Dr. Sabina Koirala, Mr. Shiva Bhusal, Miss Sabina Shrestha, Miss Sabina Pokharel, Mr. Binod Pokharel and Mr. Nikash Bholan for kind help and co-operation during the research period.



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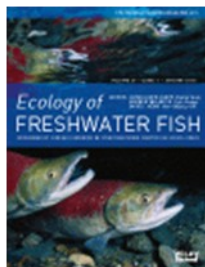
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AQUATIC VETERINARY ABSTRACTS

Compiled by David Scarfe

The Welfare of Feeding Farmed Fish

Demand feeding and welfare in farmed fish

Attia J, S Millot & C Di-Poï (2012).

Fish Physiol.Biochem., 38 (1):107-118.

Abstract

Following the development of demand-feeding systems, many experiments have been conducted to explore feeding motivation and feed intake in farmed fish. This work aims to review a selection of studies in the field, focusing on three key factors related to demand feeding and fish welfare.

Firstly, we outline how demand feeders should be considered when developing feed management strategies for improving welfare in production conditions. Secondly, via laboratory demand-feeding experiments, we show self-feeding activities depend not only on feeding motivation and social organisation, but also on individual learning capacity and risk-taking behaviour. Thirdly, we report encouraging results demonstrating that when presented with two or more self-feeders containing complementary foods, fish select a diet according to their specific nutritional requirements, suggesting that demand feeders could be used to improve welfare by allowing fish to meet their nutritional needs.

Dietary nitrogen and fish welfare

Conceição LEC, C Aragão & J Dias (2012).

Fish Physiol.Biochem., 38 (1):119-141.

Abstract

Little research has been done in optimizing the nitrogenous fraction of the fish diets in order to minimize welfare problems. The purpose of this review is to give an overview on how amino acid (AA) metabolism may be affected when fish are under stress and the possible effects on fish welfare when sub-optimal dietary nitrogen formulations are used to feed fish. In addition, it intends to evaluate the current possibilities, and future prospects, of using improved dietary nitrogen formulations to help fish coping with predictable stressful periods.

Both metabolomic and genomic evidence show that stressful husbandry conditions affect AA metabolism in fish and may bring an increase in the requirement of indispensable AA. Supplementation in arginine and leucine, but also eventually in lysine, methionine, threonine and glutamine, may have an important role in enhancing the innate immune system. Tryptophan, as precursor for serotonin, modulates aggressive behaviour and feed intake in fish. Bioactive peptides may bring important advances in immunocompetence, dis-

ease control and other aspects of welfare of cultured fish. Fishmeal replacement may reduce immune competence, and the full nutritional potential of plant-protein ingredients is attained only after the removal or inactivation of some antinutritional factors.

This review shows that AA metabolism is affected when fish are under stress, and this together with sub-optimal dietary nitrogen formulations may affect fish welfare. Furthermore, improved dietary nitrogen formulations may help fish coping with predictable stressful events.

Does feeding time affect fish welfare?

López-Olmeda JF, C Noble & FJ Sánchez-Vázquez (2012). *Fish Physiol.Biochem.*, 38 (1):143-152.

Abstract

Increased aquaculture production has raised concerns about managing protocols to safeguard the welfare of farmed fish, as consumers demand responsible aquaculture practices to provide 'welfare friendly' products. Feeding is one of the largest production cost in a fish farm and can be one of the biggest stressors for fish.

Under farming conditions, fish are challenged with artificial diets and feeding regimes, and inadequate feeding conditions cause stress, alteration of normal behavioural patterns, poor performance and eventually diseases and death, which are by no means acceptable neither economically nor ethically.

This review aims to highlight the impact of feeding rhythms and feeding time upon physiological and behavioural welfare indicators, which show circadian rhythms as well. Therefore, all these variables should be considered when designing feeding strategies in farming conditions and assessing the welfare state of cultured fish.

Safeguarding the welfare of farmed fish at harvest

Lines JA, & J Spence (2012).

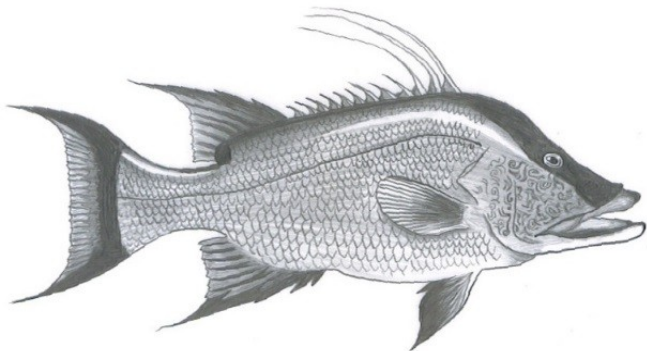
Fish Physiol.Biochem., 38 (1):153-162.

Abstract

Fish welfare at harvest is easily compromised by poor choice of handling and slaughter methods, lack of attention to detail and by unnecessary adherence to fish farming traditions. The harvest process comprises fasting the fish to empty the gut, crowding the fish, gathering and moving the fish using brails, fish pumps, and sometimes also road or boat transport and finally stunning and killing the fish.

Welfare at harvest for the majority of farmed fish species can be improved by adopting and adapting existing procedures already known to be beneficial for fish welfare through their use in other fish farming systems or with other species. It is seldom necessary to develop completely new concepts or methods.

Know Your Fishes



The **hogfish**, *Lachnolaimus maximus*, is member of the wrasse family (Labridae) and is the single species of its genus. It is named after the head of the male, which resembles a hog's snout. The hogfish is one of the few species that change from female to male (protogynous hermaphroditic) once it has reached sexual maturity. The color pattern also changes dramatically between juveniles and adults. A number of other wrasse species, particularly in the *Bodianus* genus, have "hogfish" as part of their common name; including two listed in *The Seafood List*; the spotfin hogfish, *Bodianus pulchellus* and the Spanish hogfish, *Bodianus rufus*. Hogfish is also vernacular for the pigfish, *Orthopristis chrysoptera*, but this is a very different species (grunt).

In the western Atlantic Ocean, the hogfish ranges from Bermuda and North Carolina, south to the Caribbean Sea and northern Gulf of Mexico, as well as the northern coast of South America. It is very common off Florida and the islands of the Caribbean in shallow waters. Juveniles are often found in seagrass beds in Florida Bay. They prefer open bottom or coral reef habitats and aggregate loosely around reefs, wrecks or other hard bottom areas.

In 2013, 27 tonnes of hogfish were landed by commercial fisheries, valued at \$222,000 (see table). The recreational fishery does not record specific hogfish catches, but they are considered small.

Aquaculture Status: Several successful attempts to raise hogfish in captivity have shown promise for the aquaculture industry.

Endangered Status: Hogfish is rated as overfished and subject to overfishing (NOAA 2015). The IUCN currently lists them as vulnerable. Recreational catch has fluctuated and fishing pressure has reduced populations in some areas.

Commercial Uses: Hogfish is valued as a high quality food fish. It is marketed fresh and frozen and has been raised in captivity. It is a prized game fish although reports of ciguatera poisoning have occurred.

Life Cycle

Hogfish spawn between September and April and are considered protogynous hermaphrodites. After a female reaches about 8 inches and exerts social dominance, she can become a male. Hogfish schools consist of a group of females called a harem and one male who guards the females and spawns with them exclusively. Eggs are released into the surrounding waters and hatch approximately 24 hours after fertilization. After the larval state, juveniles settle out of the water column, commonly around sea grass beds. Hogfish prey mostly on molluscs, sea snails, clams, crabs and sea urchins. They use their snout to turn over the substrate to find food. Hogfish have pharyngeal teeth they use to crush prey.

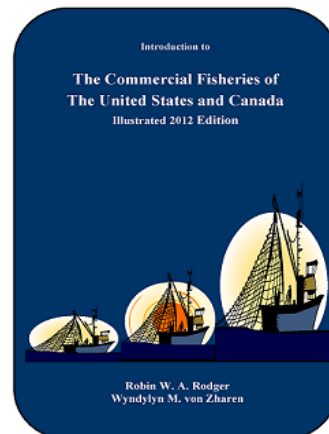
Additional information on fishes and shellfishes can be found in ***The Commercial Fisheries of the United States and Canada***. Also look for our new edition coming out soon.

The definitive guide to North American fishes and fisheries.

- Information covers almost all North America's commercial wild/farmed, marine/freshwater, fishes/shellfishes; as well as many recreational species.
- 420 pages, ~200 illustrations, hundreds of tables that include biological, socio-economic and statistical information (5 years).
- Correct market and scientific nomenclature is highlighted. The preferred market, common and Latin names in *The Seafood List* are referenced to *ITIS* and *FishBase*.

For additional information please see website:
http://www.cmppublications.com/na_fisheries.htm
Published by: Canadian Marine Publications,
PO Box 34097, Halifax, Nova Scotia, Canada,
B3J 3S1
Email: cmp@cmpPublications.com

Excerpted from
An Introduction to the Commercial Fisheries of the United States and Canada,
by R. Rodger and W. von Zharen.
2012.
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<http://wva.learning.education/>



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2017 WAVMA Executive Board Elections

Nominations for the following 2017 WAVMA Executive Board positions are now open (self-nomination is acceptable):

- President-elect
- Secretary
- Treasurer
- Directors-at-Large (3 positions)

[Click here](#) to download the 2017 Officer/Director Nomination Form - this form **and** a photograph of the nominee must be e-mailed to the [Parliamentarian](#) by August 5, 2016.

The slate of nominated candidates will be announced at the WAVMA Annual General Meeting in San Antonio, Texas on August 6, 2016. Nominations will also be accepted from the floor at the AGM.

On-line voting for 2017 WAVMA Officers & Directors will open on or around August 15, 2016. Election results will be announced on or around September 16, 2015 and will be distributed to members through e-mail, and published in *The Aquatic Veterinarian*.

Officers/Directors that are elected will serve as *ad hoc advisors* to the 2016 Executive Board, until they take office as voting members of the Executive Board on January 1, 2017.

For questions about the 2016 elections, please contact the [Parliamentarian](#).

This information is also accessible at:

<https://www.wavma.org/elections>.

Did you know?

WAVMA maintains an aquatic vet video library. Currently the videos cover a wide range of topics, including surgical procedures, diagnostic methods and guidance on how to be an aquatic veterinarian.

The videos can be accessed at:

<http://www.wavma.org/WAVMAs-Aquatic-Vet-Video-Library>

In addition, if you have a video that you would like to make available to other WAVMA members, kindly contact WebAdmin@wavma.org.

US Wildlife Officials Team Up To Save Populations Of Salamanders

June 2, 2016,

By **Alyssa Navarro**; Tech Times

With a deadly fungus threatening the population of salamanders, experts across the United States are working together to hunt for these amphibians and find out whether the disease has already affected them. Wildlife officials from the U.S. Fish and Wildlife Service (FWS) and biologists from the U.S. Geological Survey (USGS) are partnering to ensure that measures to combat *Batrachochytrium salamandrivorans* (Bsal) are working.

Bsal is the fungal pathogen that has been proven to be lethal to amphibians all over the world. Earlier this year, the FWS banned the trade and importation transfer of 201 salamander species in order to halt the spread of this fungus. Although no reports of Bsal have occurred in North America yet, its deadliness to amphibians has left officials on the defensive. They fear that Bsal could be the biggest fungal threat ever since the outbreak of the white-nose syndrome in U.S. bats.

Salamanders' ecological importance has pushed scientists to make the fight against Bsal a significant conservationist work. These amphibians' place in the food chain includes insect control and reliable nourishment for bigger animals. When Bsal arrived in Europe, it resulted in a 96 percent fatality rate among infected salamander species.

An Martel, a Belgian professor from Ghent University, says very few salamanders are left after the devastating wipeout in Europe. Martel first discovered Bsal's impact on Dutch salamanders.

"It has had a huge impact. The populations where the fungus is present are almost gone," says Martel. "We don't find any salamanders anymore."

FWS and USGS will analyze 10,000 individual salamanders across North America, which is home to about one-third of all 655 known species of salamanders. Their goal is to make sure the fungus is not present in any of the local species. Fortunately, news from research has been good so far. Evan Grant, a biologist for the USGS Amphibian Research and Monitoring Initiative, says a national survey of newts, which are relatives of salamanders, is almost complete. About 1,000 salamanders have also been studied so far by the USGS with zero cases of Bsal.

For complete article, see:

<http://www.techtimes.com/articles/162543/20160602/us-wildlife-officials-team-up-to-save-populations-of-salamanders.htm#sthash.0LhYpi7l.dpuf>

Skin Diseases in Ornamental Fish WAVMA Online Webinar

Date: July 19, 2016 Time: 15:00 GMT

Presenter: Dr. Matthijs Metselaar
DVM, PhD, CertAqV

Duration: 1 hour

Career level: Veterinarians,
Veterinary Students, Veterinary Technicians/Nurses



This presentation will cover the anatomy of the fish skin and how this relates to disease, and will highlight the main groups of skin diseases (parasites, bacteria, fungus and viral) in ornamental fish, and how to diagnose them. Other non-infectious processes that cause skin pathology will also be discussed, including possible treatments.

CEPD Credits: 1.5 hours of CEPD credit

Optional: If you later wish to gain CEPD credits by completing the KSA then fees will become applicable (note: you will be invited to take part in and pay for the KSA after the webinar has finished).

For more information go to:

[B-1025 - Skin Diseases in Ornamental Fish](#)

To register, go to:

[Register now](#)

Discover core knowledge, skills & experience needed to become a WAVMA Certified Aquatic Veterinarian (CertAqV)

Did you know that WAVMA's **CertAqV Program** offers members the opportunity to become recognized and certified as having competency in 9 core areas deemed necessary to practice aquatic veterinary medicine and will be working with others on programs for recognizing highly specialized training?

More information is available at:

<http://www.wavma.org/CertAqV-Pgm>.



US Fisheries Recovery Since 2009 (on a gross weight basis)

US fisheries records going back to 1950 show, on a quantity basis, that landings peaked in 1994 at 4.75 million tonnes, dropping to 3.58 million tonnes in 2009 and recovering to 4.31 million tonnes in 2014.

Alaskan fisheries, which picked up in earnest in the late 1980s with the Alaska pollock fishery, now account for 60% of total landed weight in the US at 2.57 million tonnes.

(Source: NMFS Annual Commercial Landings Statistics)

Weir fishing grossly underreported, Google Earth reveals



Using Google Earth satellite images, Dalal Al-Abdulrazzak counted visible weirs and estimated there were about 1,900 in the Persian Gulf. (Google Earth/University of British Columbia)

The amount of fish caught by small-scale fisheries using traps called weirs may be six times higher than officially reported in the Persian Gulf, suggest estimates made using images from Google Earth.

Based on that information, she estimated that weirs in Kuwait, Saudi Arabia, Qatar, the United Arab Emirates, Iran, and Bahrain scoop up about 31,000 tonnes of fish a year, plus or minus 10,000.

"We should realize what's being reported to the UN is likely an underestimate. That has implications for fisheries management," said Dalal Al-Abdulrazzak, a Ph.D. student with the University of British Columbia Fisheries Centre about the results of the study.

While Al-Abdulrazzak's study, published in the *ICES Journal of Marine Science*, focused on the Persian Gulf, she noted that weirs are used for fishing "practically worldwide."

See complete article:

<http://www.cbc.ca/news/technology/weir-fishing-grossly-underreported-google-earth-reveals-1.2441101>



Global Fishing Watch

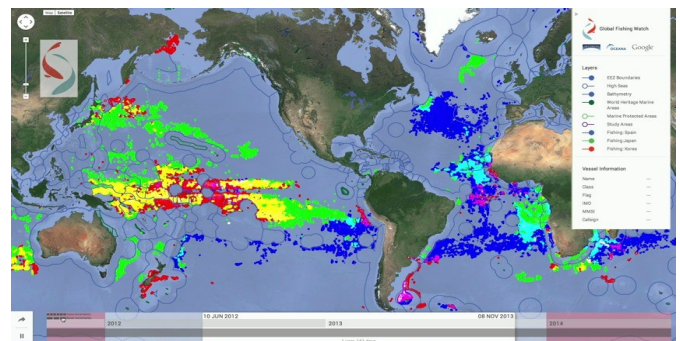
Global Fishing Watch is the product of a technology partnership between SkyTruth, Oceana, and Google that is designed to show all of the trackable fishing activity in the ocean. This interactive web tool – currently in prototype stage – is being built to enable anyone to visualize the global fishing fleet in space and time. Global Fishing Watch will reveal the intensity of fishing effort around the world, one of the stressors contributing to the precipitous decline of our fisheries.

With hundreds of millions of people around the world depending on our ocean for their livelihoods, and many more relying on the ocean for food, ensuring the long-term sustainability of our ocean is a critical global priority. We need a tool that harnesses the power of citizen engagement to hold our leaders accountable for maintaining an abundant ocean.

Global Fishing Watch will be available to the public, enabling anyone with an internet connection to monitor when and where commercial fishing is happening around the globe. Citizens can use the tool to see for themselves whether their fisheries are being effectively managed. Seafood suppliers can keep tabs on the boats they buy fish from. Media and the public can act as watchdogs to improve the sustainable management of global fisheries. Fisherman can show that they are obeying the law and doing their part. Researchers will have access to a multi-year record of all trackable fishing activity.

The tool uses a global feed of vessel locations extracted from Automatic Identification System (AIS) tracking data collected by satellite, revealing the movement of vessels over time. The system automatically classifies the observed patterns of movement as either "fishing" or "non-fishing" activity.

To see the map of global fishing activities, go to:
<http://globalfishingwatch.org/>





MEETINGS OF INTEREST TO AQUATIC VETERINARIANS

Veterinarians attending these meetings may be awarded veterinary CE/CPD credit towards annual re-licensure or re-registration to practice veterinary medicine. Individuals should check with the organizers to see if CE/CPD certificates are provided.

Australian & New Zealand College of Veterinary Scientists - Chapter of Aquatic Animal Health Science Week conference **7th and 8th July 2016**

Gold Coast Surfers Paradise, Australia
Website: anzcvs.org.au

Be at the forefront of aquatic veterinary sciences.

On behalf of the Aquatic Animal Health Chapter of the Australian and New Zealand College of Veterinary Scientists, we would like to invite you to register for this year's Science Week conference.

Science Week will be held at the usual venue, the QT Gold Coast, Surfers Paradise (qtgoldcoast.com.au) on the 7th and 8th July 2016.

For registration, Contact:
Aquatic Animal Health Chapter Science-Week Conveners.
Roger Chong (roger.chong@daf.qld.gov.au)
Richmond Loh (thefishvet@gmail.com)



For information about more veterinary meetings, go to:
<http://www.wavma.org/Aquatic-Veterinary-Educational-Meetings-Conferences-Symposia-Workshops>



EXOTICS CON

BUILDING EXOTICS EXCELLENCE: ONE CITY, ONE CONFERENCE

August 27-September 1, 2016 • Portland, Oregon



ExoticsCon

August 27 - Sept 1, 2016

Portland, Oregon, USA

Join us in Portland, Oregon for quality education and networking opportunities at ExoticsCon2016 - Building Exotics Excellence: One City, One Conference. If you're an avian, exotic mammal or reptilian and amphibian veterinarian, you won't want to miss this classroom and hands-on educational opportunity. Plus, you'll get the chance to network with hundreds of peers, as well as new and potential vendor contacts.

The [Association of Avian Veterinarians \(AAV\)](#), the [Association of Exotic Mammal Veterinarians \(AEMV\)](#), and the [Association of Reptilian and Amphibian Veterinarians \(ARAV\)](#) are excited to come together to host ExoticsCon2016 - Building Exotics Excellence: One City, One Conference.

Sign up before prices increase July 29

Hilton Portland and Executive Tower • Portland, OR

Don't miss your chance to take a hands-on laboratory course on Sunday, August 28, during ExoticsCon 2016. Limited space is available in these exclusive courses, so sign up now.

[LEARN MORE & SIGN UP NOW](#)

AVMA Convention 2016

August 5-9

San Antonio, Texas USA

Join AVMA for days full of engaging CE, and nights offering plenty of unique city experiences. No matter what your interest, area of focus or simply a desire to learn something new, you will discover it at the AVMA Convention. You can't find a more complete line up of CE anywhere else. [Visit avmaconvention.org](http://www.avmaconvention.org) to begin planning your unforgettable trip today!

See the aquatic lecture schedule on the next page.



Earn up to 40 hours of Veterinary Continuing Education & Professional Development Credit

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Aquatic Veterinary Program

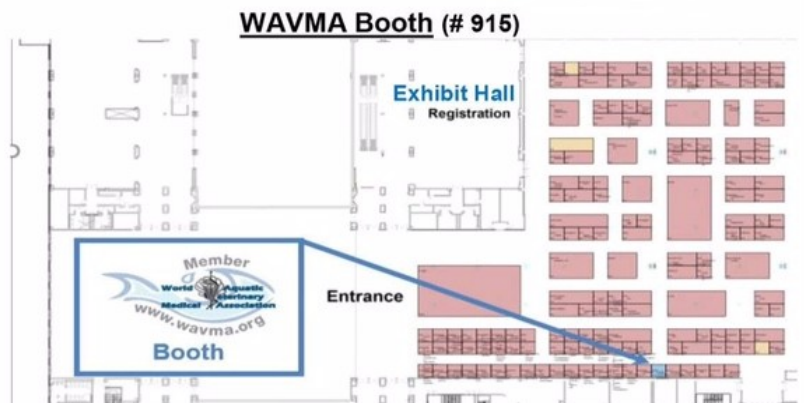
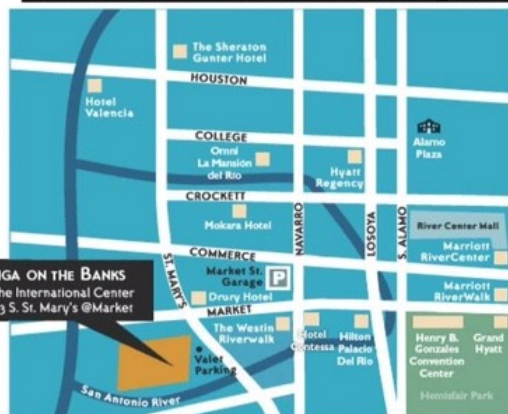
Friday - August 5, 2016			
Time	Speaker	Presentations	Henry B. Gonzalez Convention Center - Rm 206
1:00	Julius Tepper	<i>Water Biology in Pet Fish Health Management</i>	
2:00	Julius Tepper	<i>Clinical Aspects of the Design and Function Of Aquasystems</i>	
3:00	Julius Tepper	<i>Cold Weather Health Maintenance in Koi Ponds</i>	
4:00	Julius Tepper	<i>Predators of Koi</i>	

Saturday - August 6, 2016			
10:00 – 5:00	WAVMA Booth	Henry B. Gonzalez Convention Center – Exhibit Hall #915	
Time	Speaker	Presentations	Henry B. Gonzalez Convention Center – Rm 206
7:00	Julius Tepper	<i>Cutaneous Lesions in Koi</i>	
8:00	Thomas Waltzek	<i>Parasites of Pond Fishes</i>	
9:00	Thomas Waltzek	<i>Viral Diseases of Koi</i>	
2:00	Brian Palmeiro	<i>Advanced Koi Medicine</i>	
3:00	Brian Palmeiro	<i>Koi Medicine: Clinical Cases</i>	
4:00	Katrina Murray	<i>Disease Monitoring, Diagnosis, and Prevention in Laboratory Zebrafish</i>	
5:00	Thomas Waltzek	<i>Aquazoonoses</i>	
WAVMA AGM & DINNER			
7:00 – 10:00	Biga on the Banks Restaurant 203 S Saint Mary's St., San Antonio, TX 78205 <i>Registration Required</i> – Contact Julius Tepper (cypcarpio@aol.com , +1 631-521-4814)		

Sunday - August 7, 2016			
10:00 – 5:00	WAVMA Booth	Henry B. Gonzalez Convention Center – Exhibit Hall #915	
Time	Speaker	Presentations	Henry B. Gonzalez Convention Center – Rm 206
2:00	Myron Kebus	<i>Fish Farm Disease Cases</i>	
3:00	Myron Kebus	<i>The Economics of Delivering Fish Health Services to Fish Farmers</i>	
4:00	Myron Kebus	<i>Regulatory Fish Health Documents for Live Fish Movement</i>	
5:00	David Scarfe	<i>Aquatic Veterinary Education to Fulfill the Needs of a Well-prepared Workforce Serving Clients & Other Stakeholders</i>	

Monday - August 8, 2016			
10:00 – 2:00	WAVMA Booth	Henry B. Gonzalez Convention Center – Exhibit Hall #915	

WAVMA Annual General Meeting & Dinner (Biga on the Banks Restaurant, Website: <http://biga.com>)



**The 2nd Fisheries and Aquaculture Conference
(FAC 2016)
August 24-26, 2016
Xi'an, China**

We cordially invite you to submit or recommend papers to our conference through paper submission system. The main objective of FAC 2016 is to provide a platform for researchers, engineers and academicians from all over the world to present their research results and development activities in Fisheries and Aquaculture. For more details, please visit: www.engii.org/conf/FAC/2016Aug/

Conference Speakers:

- Dr. Ali Aberoumand, Behbahan Khatam Alanbia University of Technology
Title: Comparison of freezing on fat, fatty acids, TBA and peroxide contents in fishes fillet in Iran
- Prof. Carin Napier, Durban University of Technology
Title: COPING STRATEGIES AND FOOD INTAKE OF RURAL AND URBAN COMMUNITIES IN KWAZULU NATAL: THE SOUTH AFRICAN CONTEXT
- Dr. Evgenia Dor, Newe Ya'ar Research Center
Title: Mutagenesis as a tool to improve agricultural crops
- Prof. KARIM SORKHEH, Shahid Chamran University of Ahvaz
- Prof. Magdy Mohamed Gaber, University of Temri-azev Moscow
Title: Individual difference in Fish Nutrition research
- Prof. Wulf Diepenbrock, Martin-Luther-University of Halle-Wittenberg
Title: Energy Balancing in Cropping Systems

Email: agr_aug@engii.org
Tel: +86 156 2908 5792



**World Veterinary Congress
to be an Annual Event**

The WVA Council approved the proposal from the Standing Committee for the World Veterinary Congress to hold the WVC as an annual event. Following the 33rd World Veterinary Congress that will take place in Incheon, Korea on 27-31st August 2017, the WVA Council agreed to hold the 34th WVC in Barcelona, Spain in April 2018. WVA and Korean Veterinary Medical Association already started to prepare the WVC in Korea in 2017. Please save the WVC 2017 date in your diary.

**International Society in Aquatic Animal
Epidemiology Conference (ISAAE I).
September 19 - 21, 2016
Oslo, Norway**

The conference aims to bring together leading scientists, research scholars and students from all parts of the world to exchange and share their experiences and research results about all aspects of Aquatic Animal Epidemiology. It will also provide a platform for discussion about how to meet the research needs of the aquaculture industry and facilitate interaction with stakeholders, industry and regulatory agencies for fruitful collaborations. It will provide an in-depth coverage of current and future epidemiological tools and their practical implications to aquaculture. Topic-focused sessions will cover but not limit to:

- optimizing use of epidemiology data
- design and evaluation of risk factor studies
- molecular epidemiology
- spatial and temporal patterns in prevalence and risk mapping
- diagnostic misclassification
- design and evaluation of surveillance and control
- risk analysis

Invited speakers will highlight global emerging issues within aquaculture and the use of future epidemiology control strategies to inform policy makers, and how to improve collaboration with the industry and single farmers to sustainable health and welfare management in the face of safe trade, economic constrains and climate change.

For more information, contact edgar.brun@vetinst.no, or go to www.wavma.org/Aquatic-Veterinary-Educational-Meetings-Conferences-Symposia-Workshops

**41ST WORLD SMALL
ANIMAL VETERINARY
ASSOCIATION
CONGRESS**

27-30 September, 2016 | Cartagena, Colombia



The WSAVA World Congress is an internationally recognized veterinary congress with a scientific program of the highest standard produced in alternating regions reflecting the local culture and veterinary diversity. The scientific program includes two streams organised by the local host association designed for the regions' practicing veterinarians. The congress is held for three to four days and generally presented in English with translations as needed.

<http://www.wsava.org/events/wsava-congress>

Calendar of Upcoming Meetings

July 16-17, 2016

American Association of Zoo Veterinarians, Exotic Animal Medicine for the Clinical Practitioner -- Hyatt Regency Atlanta, Atlanta, Georgia, USA

August 5-9, 2016

** **American Veterinary Medical Association Convention** -- San Antonio, Texas
** 2016 WAVMA Annual General Meeting -- San Antonio, TX, USA - August 6, 2016

August 14-19, 2016

Health and Colony Management of Laboratory Fish Short Course -- MDI Biological Laboratory, Salisbury Cove, Maine, USA

September 19-21, 2016

International Society in Aquatic Animal Epidemiology Conference (ISAAE I) -- Oslo, Norway

September 27-30, 2016

** **World Small Animal Veterinary Association Congress** -- Cartagena, Colombia

October 3, 2016

** **World Veterinary Association General Assembly Meeting** -- Panama City, Panama

October 4-7, 2016

XXV Congreso Panamericano de Ciencias Veterinarias (Pan American Congress of Veterinary Sciences - PANVET) -- Panama City, Panama

2016 WAVMA WebCEPD Lineup

When finalized, a full description and registration link will be added to the WebCEPD page. <https://www.wavma.org/WebCEPD>

Below is a list of the coming webinars from: <https://www.wavma.org/upcoming-webinars>

July 19, 2016 - Dr. Matt Metselaar
"Fish Skin Disease"

August 18, 2016 - Dr. Orachun Hayakijkosol
"Sea Turtle Medicine"

September 15, 2016 - Dr. Paul Hick
"Fish Iridoviruses"

October 4, 2016 - Dr. Greta van de Sompel
"Removing Fish Tumors"

November (TBD), 2016 - Dr. Richard Podolsky
"Humane Control of Birds at Aquaculture Sites"

December 6, 2016 - Dr. Ken McColl
"Cyprinid Herpesvirus 3: A Potential Biocontrol Agent for Carp in Australia"

Interested in giving a webinar suitable for veterinary CEPD? Contact the [WebCEPD Administrators](#). Additional webinars may be scheduled, if sufficient time lead time (usually 60+ days) for preparation is available.



Project Piaba: Sustainable Fisheries and Conservation medicine on the Rio Negro, Brazil

Project Piaba was initiated a bit over 20 years ago with the goal of supporting the wild-caught aquarium fisheries on the middle reaches of the Rio Negro, one of the major tributaries of the Amazon River. This well-documented sustainable fishery is under increasing threat of collapse due to competition from farm-raised Brazilian fish species that are currently produced in Asia. Further, the local fishing communities have been instrumental in protecting the local riverine and rainforest environments from the incursions of logging, mining and cattle ranching. Thus, this fishery enhances protection of the rainforest in this region while providing important socio-economic benefits to the local populations. While there is still strong demand for sustainable collected wild-species, the international competition has put increasing demand on the local fisheries to improve efficiencies and overall fish handling and health management practices.

Veterinary students participating in this 2-week expedition will have the opportunity to experience the multiple ways in which veterinarians can become involved with conservation and sustainable development projects and to utilize their skills not only to improve the health of the local aquatic species, but also the lives of the local human populations.

The expedition length is two weeks. Students will travel to Manaus, Brazil and travel upriver via riverboat approximately 500 miles to the main fishing grounds and then back downriver to the primary transit stations and ultimately to the export facilities in Manaus. Students will also have the opportunity to learn about the local flora and fauna in the region, as well as the sociological conditions and pressures on the fishing communities in this region. They will also have an opportunity to meet the local fishers, middlemen and exporters and develop an understanding of the importance of this fishery to the local communities.

Veterinary students will participate in the evaluation of overall husbandry and health management of the fish collected within this fishery throughout the chain of custody from collection to export. They will carry out health examinations of fish throughout the chain of custody and learn about the changing health management and disease problems associated with each stage of the chain of custody. Students will complete a small project and participate in the facilitated roundtable held at the end of the expedition to set goals for the next year and identify emerging needs or threats.

We're working on the itinerary which you'll find here: <http://projectpiaba.org/what-we-do-2/expeditions/>

Here's a video that Oregon Sea Grant produced about the fishery on the Rio Negro and the travels of these fish to Oregon: https://www.youtube.com/watch?v=AqRmDFas_kg. We shot this footage on the trip in 2014.

Costs:

\$2,750 for 2 weeks on the boat in Brazil (only \$2,600 if paid in full by September 1, 2016). All food is included except for alcohol or carbonated/bottled beverages and the crew tip.

Brazilian tourist visa (\$100).

Airfare to Brazil (\$1,200 - \$1,300 from most US cities).

We're working on reserving flight blocks with American Airlines again this year. If you are interested in linking into the flight block reservations, let us know as soon as possible. These provided a nice savings last year and if we can book earlier this year, we may save folks a bit more. Feel free to contact me if you have any further questions. Hope to see you in Brazil.

Sincerely,

Timothy J. Miller-Morgan, DVM, CertAqV
 Lead, Aquatic Animal Health Program, Oregon Sea Grant, College of Veterinary Medicine, Oregon State University
 Assistant Professor, Department of Biomedical Sciences, College of Veterinary Medicine
 Instructor, Aquatic Animal Health Management, Aquarium Science Program, Oregon Coast Community College
 Veterinarian/Trainer, Project Piaba, Brazil
 Member, Steering Committee, IUCN, FFSG –HASG
 Chair, Credentialing Committee, World Aquatic Veterinary Medical Association

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<http://vetmed.oregonstate.edu/>

<http://www.oregoncoastcc.org/aquarium-science>

Blog: <http://blogs.oregonstate.edu/wetvet/>

Facebook: <https://www.facebook.com/aquaticanimalhealthprogram?ref=hl>

<https://www.facebook.com/aquaticanimalhealthprogram?ref=hl>

Aquatic Veterinarian, Finfish

Employer: Kelly Cove Salmon Ltd. (a division of Cooke Aquaculture Inc.), Blacks Harbour, NB (Canada).

Brief Description: An immediate opening (maternity leave position) to join an existing Fish Health Team and will support our Corporate Veterinarian in providing veterinary care for the organization's marine farms and land-based facilities. The ideal candidate must be a team player with strong leadership and organizational skills and be comfortable in a fast paced environment. Candidates must possess a DVM degree and be eligible for licensure in the Atlantic Canadian Provinces. Preference will be given to those with aquaculture experience. Salary commensurate with experience and competitive benefit package available.

For More Information & to Apply: [Click here](#)

Position: Staff Veterinarian (Marine Mammals)

Employer: Atlantis Paradise Island (Bahamas).

Brief Description: Plans, directs and participates in the health care of Atlantis' marine animals. Establishes and conducts effective quarantine and testing procedures for all incoming animals to ensure the health of the collection, prevent the spread of disease and comply with all government regulations. Conducts regularly scheduled preventative care programs to maintain the health of the animals and guard against communicable diseases. Participates with other personnel in planning and executing nutrition, quarantine, and reproductive programs. Participates in employee training in the proper handling and care of the animals. Conducts postmortem studies and analyses. Cooperates with other zoo and aquarium personnel to exchange information concerning the care of animals.

For More Information & to Apply: [Click here](#)

Position: Assistant Professor (Fish Pathology)

Employer: Department of Aquaculture and Fisheries, University of Arkansas at Pine Bluff (USA)

Brief Description: This tenure track position provides vital fish health research and extension diagnostic support for Arkansas aquaculture. The incumbent will develop a productive research program including both biotechnological and applied aspects of fish health issues that will result in more effective diagnosis, treatment, and prevention of fish health problems. The successful candidate will oversee fish disease diagnostics at the Pine Bluff location, and will participate in fish inspections as needed for certifications. He/she will also be expected to contribute to extension educational programs focused on fish health and biosecurity. Teaching responsibilities will include a graduate course in Fish Health and an undergraduate Biology of Fishes course. The faculty member hired will be expected to mentor MS and PhD graduate students.

For More Information & to Apply: [Click here](#)

Positions (3): Aquatic Veterinarians

Employer: Washington Department of Fish & Wildlife - Wenatchee, Vancouver & Olympia, WA (USA)

Brief Description: Permanent full-time in the Fish Program, Science Division to routinely monitor and evaluate health of finfish, primarily at WDFW hatcheries but also at cooperative facilities, and in wild fish populations; recommend best possible treatments currently available to control disease; institute disease prevention programs; recommend modifications in rearing parameters and fish cultural practices to prevent disease; and perform applied research for improving the health of finfish at WDFW hatcheries. Incumbents will also prescribe, monitor and have oversight in the application of prescription medications for finfish at WDFW operated hatchery facilities and ensure compliance with FDA requirements for use of therapeutants, conduct surveillance for regulated pathogens to meet the requirements of the Salmonid Disease Control Policy and provide directions to Fish Program staff and aquaculturists regarding compliance with this Policy, and provide reports on status of the health of the fish to WDFW staff and staff at agencies, tribes, states.

For More Information & to Apply: [Click here](#).

Position: Aquatic Veterinarian/Diagnostician

Employer: The Fish Group - Portland, Maine (USA)

Brief Description: This is a full-time position with a competitive salary and attractive benefits package for an immediate opening for an aquatic veterinarian/diagnostician to expand our team in Portland, Maine. The incumbent will perform disease diagnoses of aquatic animal diseases, including gross and histopathologic examination, bacterial and viral culture, and molecular assays on finfish, shellfish and crustaceans. This position will also provide veterinary support in the form of disease management and mitigation and biosecurity inspections in the field. This post reports to the Operations Director (or as assigned by the Director).

For More Information & to Apply: [Click here](#).

Position: Associate Aquatic Veterinarian

Employer: Dallas World Aquarium - Dallas TX, USA

Brief Description: A full-time veterinarian to provide quality and consistent veterinary care for a diverse collection of tropical/neotropical birds, fishes, reptiles, amphibians, invertebrates and mammals. Particularly seeking person with avian experience and/or interest in working one of the largest collections of neotropical birds. Responsible for emergency and routine medical care and preventive medicine for a diverse collection of aquatic and terrestrial animals.

For More Information & to Apply: [Click here](#)

Remember the Alamo!

And remember that our **Annual General Meeting** will be at the AVMA Convention in San Antonio, Texas on Saturday, 6 August 2016. Please contact the Meetings Committee Chair if you are planning to attend:

Julius Tepper cypcarpio@aol.com

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Ways to Register

1. [Sign-up online](#)
2. By phone at 888-295-4523 (U.S. and Canada) or 972-349-5813 (International).
3. By mail by downloading a [registration form](#).

For a program schedule, go to:

http://www.avmaconvention.org/avma2016/custom/images/CON_SAN16_FirstGlance_LR.pdf

The Aquatic Veterinarian

**The Quarterly Magazine of the
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