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The Aquatic Veterinarian

Piranha in the Shedd Aquarium mistaken for a meal?
(Photo by Dr Mike Corcoran)
See article about Shedd Aquarium on pages 28-30.

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World Aquatic Veterinary Medical Association

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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Editor's Note

It's not often that you actually experience events that you read about in the news. However, in June, my family and I spent 6 days at a beach house on Pacific Beach in San Diego and were witness to this sad but amazing phenomenon:

Thousands Of Tuna Crabs Wash Up On San Diego Beach http://investmentwatchblog.com/thousands-of-tuna-crabs-wash-up-on-san-diego-beaches/#YbuH5MmJcMCxGH5t.99

Pleuroncodes planipes, sometimes called the pelagic red crab, tuna crab or langostilla, is a species of squat lobster from the eastern Pacific Ocean. It is a bright red animal, up to 13 centimetres (5.1 in) long. It resembles a miniature lobster, but has a shorter abdomen. [from Wikipedia] See more here: http://www.cnn.com/2015/06/17/us/california-san-diego-crab-invasion/

Our summer adventures continued driving up the California coast after our stay in San Diego, and included a visit to the amazing Monterey Aquarium (which shall be elaborated on in the next issue of *The Aquatic Veterinarian*) and an impressive viewing of the elephant seals on the beach near San Simeon. Look at the brown lumps on the sand—those are all huge elephant seals! It was quite a sight to behold.

Nick Saint-Erne, DVM, CertAqV
Executive Editor
AVNeditor@WAVMA.org

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 back-issues of *The Aquatic Veterinarian.*

Cover Photo:

Piranha in the Shedd Aquarium mistaken for a meal?
(Photo by Dr Mike Corcoran)

At the AAFV Meeting hosted by the Shedd Aquarium in Chicago, Illinois, we came upon an exhibit of South American fishes which included a school of piranhas, one of which had a piranha-sized bite right out of it. Must have gotten in the way of its buddy during a feeding frenzy. See related article on pages 28-30.

WAVMA is on Facebook!

Find us 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.

EXECUTIVE REPORTS

President's Report

You know you're getting older when you have to start making lists of what you need to do. For once though, I need a list because of all that has happened and going on in WAVMA. Some of it is only at the discussion stage but it is my belief that if WAVMA succeeds at what the Executive Board is trying to achieve, then WAVMA will be the premier, go-to aquatic veterinary organisation globally.

The first event for WAVMA of the year was a day of presentations at Aquaculture America in February. WAVMA aquatic veterinary presentations have now run since 2008 and plans are already in progress for 2016. In March, I attended the annual Fish Veterinary Society Conference. As usual it was two days of excellent presentations demonstrating the diverse sources of knowledge veterinary medicine relies on, with a most fascinating presentation by Prof. Pieter van West, a plant pathologist who demonstrated his reasoning as to why *Saprolegnia* was a primary pathogen for fish. Also during March, Prof. Dusan Palic, former WAVMA President became Chair of the World Veterinary Association's Communications Working Group demonstrating WAVMA's willingness to help other veterinary organisations and to promote aquatic veterinary medicine to a wide audience.

April was a quite month with WAVMA sponsoring and attending the IAAAM Conference in Chicago, which I was hoping to attend along with the AAFV meeting. Unfortunately I was unable to use my "air miles" to keep the cost reasonable and had to decline. See the report about the AAFV meeting elsewhere in this issue.

In May, WAVMA held the first aquatics lectures during the 40th WSAVA Congress, Bangkok, Thailand. This proved to be the highlight of the year so far, with several members attending. With over 200 people attending the aquatic veterinary presentations over two days it was hailed as a success and preparations are already in place for WAVMA to attend and present at the WSAVA Congress in 2016 and 2017. As far as I am aware, this is the first time that ornamental/pet fish veterinary medicine has been presented to a global audience.

As well as this success, the WAVMA reception at the start of the Congress proved a little too successful, the restaurateur having to open an extra room due to double the number of people attending to find out more about aquatic veterinary medicine. Perhaps a case of Thai hospitality but the bill was the same! I would certainly recommend the Ban Khun Mae Restaurant if you are ever in Bangkok and it is close to the Faculty of Veterinary Science Chulalongkorn University, where Prof. Chansue provided WAVMA members with a tour of the aquatics facility and information on her turtle rescue program. A further highlight was a visit to the Siam Aquarium just across from the conference hotel.

One interesting result of attending WSAVA is the possibility of WAVMA collaborating with Vetstream / Vetfolio. Whilst this is only in the discussion phase there could be several benefits to WAVMA members and for WAVMA itself. The possibilities include providing a global source of information on aquatic veterinary medicine via Vetstream, reduced membership fees to Vetfolio, online material to assist those studying for the CertAqV, a WAVMA Vetacademy, a WAVMA stream at NAVC and practical sessions at the NAVC Institute. It is likely that Vetstream will be used to host the first WAVMA Virtual Conference towards the end of the year.

Prof. Chansue (center) was proclaimed the Thai Veterinarian of the Year at the WSAVA conference. Here pictured with the WAVMA speakers.

EXECUTIVE REPORTS

The WAVMA Virtual Conference will probably run as two streams, "so you want to be a fish vet" and "you're a fish vet and want to know more" and will consist of live and recorded presentations with chat-rooms available to talk with presenters and discuss presentations. All presenters will be given free registration to the conference so I hope you will all be enthusiastic, fine tune those presentations and really get involved. The length of the conference will depend on the number and quality of presentations. It will provide access to a global audience and presentations will be recorded so as to be available in the future. If it can be organised it would be great to have some short presentations (20 minutes with 10 minutes for Q&A's) and long presentations (45 minutes with 15 minutes Q&A's). This is the first time WAVMA has organised such an event and if it is a success it will be held annually. For further information then please contact me (president@wavma.org) and whether you are a Professor or student, I'm sure we can make this a big success.

Also occurring in the first half of the year is the awarding of what is now called the John Pitts Aquatic Veterinary Education Support Program. This program supports veterinary students around the world to fulfil their passion for aquatic veterinary medicine and this year it was decided to have an overall winner who is Austin McConnell – class of 2016, Auburn University, USA. I would like to congratulate Austin personally. To have won this award from amongst such high calibre fellow students is truly amazing. I look forward to seeing how Austin's career develops. I also extend my congratulations to a further 10 students who received the award. How many students we can help each year depends on the amount of money raised, so please consider donating now whilst it is fresh in your mind.

Looking forward to the second half of the year, Board and student members have been invited to attend the International Veterinary Students Association Summer School in Cluj, Romania later in July. WAVMA has the opportunity to introduce aquatic veterinary medicine to those who maybe have not thought of it as a career choice or realised the importance of aquatics not only in feeding the global population but also in conservation, ecology and the environment. This will be followed up next year by WAVMA presenting at the ISVA Welfare Conference.

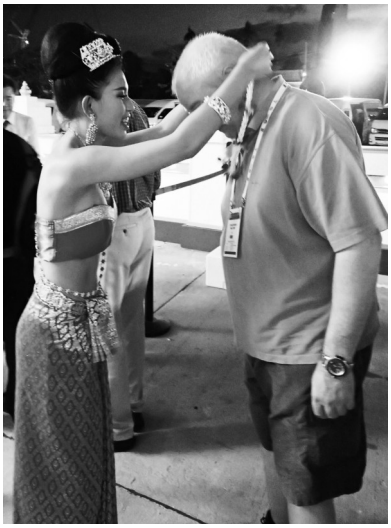
The AGM this year will be held during the WVA Congress in Istanbul Turkey on Tuesday 15th September. I know of several members who have already committed to travelling to Istanbul, a city I can recommend you visit, and it would be great to see more of you there. There will of course be a WAVMA stream to attend but Istanbul is a city with a lot of history and I am sure there will be a lot to do socially.

As long standing members will know, WAVMA holds elections to the Executive Board, with results announced during the AGM so start considering if you wish to stand. Application forms will be made available from the website and you can self-nominate for Executive Board positions.

About the only thing I have not yet mentioned is the success of the monthly WAVMA webinars. These regularly have over 300 people registering although as is the case with webinars not all attend the live stream. There will be a monthly webinar until at least the end of this year but now is the time to start looking for next year's presenters. If you wish to present yourself or know of someone who would provide a lecture, contact me or David Scarfe.

Of course WAVMA committees do so much more than the above. The Executive Board and Communications Committee meet monthly to develop programs that help our members aspire to be the best. Other committees meet as required such as the Credentialing Committee and Membership Committee. The members of these committees work voluntarily for what is a very rewarding objective, to make the WAVMA mission statement a reality, so if you have some free time please volunteer, you know it is worth it. And you will get to know a great bunch of fellow Aquatic Veterinarians!

Chris Walster,
BVMS MVPH CertAqV MRCVS,
2015 WAVMA President
President@WAVMA.org



Secretary's Report

Dear WAVMA members, we have arrived at the halfway mark of the mandate that you gave to the 2015 Executive Board. I am pleased to report that the new board members, namely Drs. Chad Harris, Laura Urdes and Sharon Tiberio, have been contributing meaningfully to the progress of WAVMA.

As I indicated continuously in the past, our endeavors have always been to bring more visibility to WAVMA, promote aquatic veterinary medicine, and continue to forge ahead with new benefits for you, our members. I thank all of you that have renewed your membership for this year and the new members that have signed up with us. I am particularly pleased to report that an increasing number of members are expressing an interest and have begun the process of being certified with day one competency in Aquatic Veterinary Medicine. Allow me to also congratulate those that have successfully completed the process in the first half of the year: . If you may be considering this or intend to embark on the process, more details are available at http://www.wavma.org/CertAqV-Pgm.

I continue to personally track the progress of the Students Committee, which, in spite of inevitable challenges, is pushing ahead with the agenda of students' interests that includes among other things, having the mentorship program up and running; and having a section of the WAVMA website dedicated to information on externships and internships. A representative of the student body will also be representing us at the International Veterinary Students Association Conference in Romania, where lectures and a wet lab will be provided by a WAVMA delegation. Remaining within the sphere of students, allow me to congratulate the recipients of the 2015 awardees of the John Pitts Aquatic Veterinary Educational Support Program and I would like to thank those who have donated to this noble cause for the benefit of our future aquatic veterinarians. More about the scholarship can be found at http://www.wavma.org/scholarships.

WAVMA was fortunate through a collaborative effort with the World Small Animal Veterinary Association (WSAVA) to successfully host an Aquatic stream for the first time at the WSAVA congress held in Bangkok from May 15-18, 2015. The attendance and participation in these sessions were extremely encouraging and augurs well for future congresses. Please be reminded that as a member of WAVMA you are also entitled to paying a special member rate to attend any WSAVA congress. We continue to explore other avenues which would ultimately bring added benefits to all WAVMA members in other organizations.

As secretary I am tasked with circulating material and invitations from like-minded organizations which may require the input of the wider membership. For those of you who may have responded favourably in the past I thank you. In the same breath I encourage other members to do the same. Finally, I reiterate my call to all of you to inform us of ways in which we can serve you better as we continue into the second half of the year.

Devon Dublin, PhD, DMVZ, MSc. CertAqV
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Treasurer's Report

WAVMA is on track with the projections in the 2015 budget with the likelihood of surpassing the projected income. When possible, WAVMA Members are encouraged to use PayPal to pay for memberships and other items, as there are lower fees than with credit card use.

Some noteworthy items:

Income:

- CertAqV application income: **$2750** received YTD of **$4000** projected for 2015
- Donations received: **$3000** YTD ($2000 from Madelyn Pitts & $1000 from American Fisheries Society). **$1000** was projected
- Webinar Income: **$327.75** (before PayPal fees)

Expenses:

- Citrix Webinar Expense: **$1641.84** (**$950** was budgeted. $948.84 was paid for the 2015 subscription, the balance was for 2014 fees paid in January. Paying an annual subscription will save WAVMA $239/year.)
- Transaction fee averages YTD: **Chase Bank**- **$5.81**/transaction, **$106**/month **COMPARED WITH** **PayPal**- **$2.28**/transaction, **$39**/month

Individual Membership Total: 308

- Full Members: 114
- New Grad Full Members: 11
- Vet Student Members: 180
- Vet Tech/Nurse Members: 2
- Affiliate/Non-Vet: 1

AVO Memberships: 1 (ANZCVS)

Sharon Tiberio, DVM, CertAqV
2015 WAVMA Treasurer
Treasurer@WAVMA.org

Update on 2015 Budgeted Income and Expenses

INCOME DETAILS	ACTUAL	BUDGETED
Veterinarian Memberships	9,300.00	10,000.00
Vet Student Memberships	3,800.00	4,500.00
New Graduate Memberships	450.00	200.00
Vet Tech/Affiliate Memberships	100.00	150.00
AVO Memberships	850.00	1,000.00
Webinar/Meeting Income	327.75	1,800.00
CertAqVet application fees	2,750.00	4,000.00
Income - WAVMA merch	16.00	100.00
Donations / Sponsorship	3,000.00	1,000.00
Total income:	**20,593.75**	**22,750.00**

EXPENSE DETAILS	ACTUAL	BUDGETED
MEETINGS		
Annual General Meeting		3,000.00
AVMA Meeting		500.00
IAAAM	1,500.00	1,500.00
WSAVA	2,108.25	2,000.00
AVMA/AqVM Committee	772.80	1,000.00
SAVMA		100.00
Aquaculture America	349.93	1,385.00
Total Meetings expenses:	4,730.98	9,485.00
ADMINISTRATIVE		
Illinois Secretary of State	10.00	10.00
Credit Card TXN Fee	633.58	1,000.00
Bank Fees	45.00	50.00
Fellowship Plaques		100.00
PayPal Fees	230.15	500.00
Office supplies		100.00
WAVMA Store Merch		50.00
Postage/Shipping	37.66	50.00
Promotions for Booths	311.68	100.00
Contributions	300.00	500.00
Organization Dues	824.47	1,000.00
Donation/Student Scholarship	1,500.00	3,000.00
Total admin. expenses:	3,892.54	6,460.00
SERVICE & EQUIPMENT		
Accounting		100.00
Legal - DKM&O	125.00	200.00
Professional Management		100.00
Survey Monkey, Survey Gizmo	320.00	200.00
WikiSpaces	200.00	500.00
Citrix Webinar Expense	1,641.84	950.00
Net Business Website Hosting	622.15	800.00
Imaginaction Website Dev't	1,284.22	5,000.00
Total S&E expenses:	4,193.21	7,750.00

COMMITTEE REPORTS

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*, Facebook, Twitter, LinkedIn and other social media accounts.
Chair: Laura Urdes, laurau_2005@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: Nick Saint-Erne, nsainterne@gmail.com

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. Chair: Lydia Brown, drlydiabrown@gmail.com

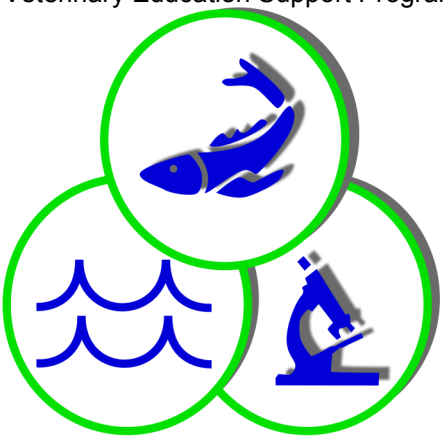
Student Committee

This Committee facilitates networking between student members and helps development of student programs and services.
Chair: Justin Krol, justkrol21@gmail.com

Scholarship Committee

Update on the 2015 Aquatic Veterinary Education Support Program: ten persons were awarded the WAVMA/ Dr. John Pitts Aquatic Veterinary Education grants of USD $500 each (Kurt Arden, Meghan Baker, Sirjan Bastola, Jennifer Engelhard, Nora Hickey, Ashley Kirby, Sarah Knowles, Shelby Loos, Julianne Richard, and Christine Richey), with Austin McConnell receiving the John Pitts Scholar award of USD $1000.

Special thanks to Madelyn Pitts and the American Fisheries Society - Fish Health Section (http://www.afs-fhs.org/) for their generous donations to the Aquatic Veterinary Education Support Program.



SFC Scholarships Available Now For EU Students

Scottish Funding Council (SFC) have offered scholarships for students from the EU. Available for enrollment onto the September 2015 Postgraduate Diploma/MSc in Sustainable Aquaculture. 70% of the £18,470 course tuition fee is paid via the scholarship fund. Applicants must reside within Scotland (rest of the UK not eligible) or the EU, and be eligible to study for the qualification. The deadline for applicants is **18 August 2015**. To apply please contact elearning@5mpublishing.com or call (0) 114 246 4799.

COMMITTEE REPORTS

Fellowship Advisory Council

WAVMA has established a fellowship program to recognize those world-renowned veterinarians who have advanced aquatic veterinary medicine as a discipline and devoted their time and efforts to serve WAVMA's mission. The Fellowship Advisory Council allows Fellows to provide direction on WAVMA scientific activities, advise the Executive Board with guidance on their initiatives, and mentor applicants for Aquatic Veterinarian Certification (CertAqV).

Our WAVMA Distinguished Fellows are:

Dr. Peter L. Merrill
Dr. Ronald J. Roberts
Dr. A. David Scarfe
Dr. Julius M. Tepper
Dr. Christopher I. Walster
Dr. Dusan Palic
Dr. Grace Karreman
Dr. Marian McLoughlin

See: http://www.wavma.org/wavma-fellows.cfm?

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Cecil, Todd	waavs@aol.com
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Dublin, Devon	devdub@yahoo.com
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Loh, Richmond	thefishvet@gmail.com
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Weber, Scott	sharkdoc01@gmail.com

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 twenty-seven aquatic veterinarians. Please welcome our latest Certified Aquatic Veterinarians:

Dr. Giana Bastos-Gomes

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

Nick Saint-Erne, DVM, CertAqV
2015 Credentialing Committee Chair
nsainterne@gmail.com

Communications Committee

The latest achievements of the Communications Committee are as follows:

MailChimp e-News: The first issue of the MailChimp e-News is ready to go, and it will soon be available for WAVMA members to view it in their Inbox, *via* WAVMA_Members listserve. The primary objective of the WAVMA e-News is to keep our members informed about WAVMA and WAVMA related organizations' current activities, initiatives and offers in the field of aquatic veterinary medicine. For a start, the e-News shall be distributed once a month.

Reminding about WAVMA member benefits: In an effort to make our members aware of the various programs and resources which WAVMA offers, and to help refresh the picture and video galleries for public/ member's use, snippets of information will be sent out periodically through WAVMA members_L, TAV and the readily available social media tools.

The Education Opportunities webpage will be completely changed starting with the implementation of a system for online submission of student externships. Dave Scarfe is currently working with Steven Reichley to develop the Student Externships section; this should become functional soon.

The IVSA 2015 congress, Cluj-Napoca: the Communications Committee, with the help of Richmond Loh and the Student Committee, have produced a video testimonial by students that shall be presented during the event at the WAVMA Booth, at "International Stands" in Cluj, Romania.

Formulating a policy on Aquatic Education: The Communications Committee will develop a draft proposal which shall be submitted to the Credentialing Committee for refinement. It should be either a standalone WAVMA policy or a joined policy (i.e. the input outcome of a mixed team including WAVMA, WVA and renowned personalities in the field of aquatic veterinary medicine). The policy comes as a recommendation for vet schools to incorporate with their curriculum some or all of the nine core areas, which are the basis of our CertAqV program. Dave, Laura and Chris are working on producing the draft.

Laura-Daniela Urdes DVM PgDip PhD CertAqV
Communications Committee Chair
laurau_2005@yahoo.com

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.

COMMITTEE REPORTS

Membership Committee

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

New Members (April-June, 2015):

Full Members
Frederic Chua
Katja Geschke
Stephanie Grimmett
Cally Hammond-Tooke
Orachun Hayakijkosol
Elizabeth Kaufman
Kathleen Woodie
Elvis Chikwati
Hlaing Minoo
Mark Mitchell
Tomas Pino
Rod Andrewartha
Judith Handlinger
John Lumsden

New Graduates
Nicole Epstein
Matthew Sheley

Affiliate Non-vet
RuthEllen Klinger-Bowen
John Walakira

Vet-Tech/Nurse
Kelly Powell

Student Members
Pietro Allasia
Amanda Ardente
Nicole Barichello
Jenice Bell
Erin Berlin
Brittany Bogus
Renee Borg Buontempo
Vincent Borkowski
Vivian Braun
Erika Brigante
Michelle Callow
Robert Campbell
Kelsey Carter
Candace Chmielewski
Esther Choi
Martha Dalton
Manuel De la Riva
Lindsey Deibner
Christelle Follette
Hiram Garcia
Chase Gorman
Stephanie Gross
Ashley Heard-Ganir
Mallory Henderson

Student Members
Kristine Hill
Nikki Holloway
Amy Jager
Melinda Kilty
Michelle King
Ryan Labang
Ashley Lackey
Logan Landroche
Perkins Leanne
Nicole Leonard
Jennifer Liscinsky
Rachel Madenjian
Stroe Marina-Stefania
Victoria Maroun
Chelsey Martin
Caitlyn McAlpin
Claudia Medina
Larissa Menke
Allyn Meyer
Michelle Mills
Christine Moore
Kent Morton
Lauren Munchel
Tara Needham
Nadene Oliver
Rafael Payan Aviles
Jolene Pflaum
Lauren Robinson
Rodrigo Roca
Lauren Rodriguez
Jessica Rogers
Patinan Rookkachard
Mary Ryan
Aubrey Sapala
Macy Sheehan
Lawrence Shen
Stanley Soehnlen
Mariko St James
Alicia Sweeney
Tia Taketa
Samantha Thompson
Kimberly Van Ness
Jessenia Vargas
Rachel Vistein
Katie Vitulli
Gabrielle Weber
Victoria Wolc
Thomas Wurtz
Maria Zayas
Amanda Zellar

Lydia Brown MBE FRCVS
Membership Committee Chair
drlydiabrown@gmail.com

Meetings Committee

WAVMA was well represented at the WSAVA Conference in Bangkok, Thailand in May. Great presentations were given and a great time was had by all. See more information about the conference in this issue!

The Executive Board reaffirms its commitment of USD $3000 towards the WAVMA Annual General Meeting in conjunction with the World Veterinary Congress in Istanbul, Turkey (September 13-17, 2015). WAVMA President Chris Walster, along with Nick Saint-Erne, David Scarfe, Donald Stremme, Sadar Aslam, Mustafa Yipel, Seyed Mohammad Ebrahim Jalil Zorriehzahra and myself will be speaking at the conference on Aquatic Veterinary Medicine.

The 2015 IVSA meeting in Romania will be attended by several WAVMA members. WAVMA promotional materials need to be provided to them to hand out at the conference.

The 2016 IVSA Welfare Conference has moved to the Netherlands. The 2016 WSAVA Conference will be held in Columbia. Richmond Loh and Devon Dublin have been invited to give Aquatic presentations there.

The North American Veterinary Conference in Orlando, Florida in January 2016 already has an aquatic stream. However, Chris Walster is discussing with the NAVC how WAVMA could be incorporated into it and the benefits to be obtained.

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

The WAVMA store is open!!!

The WAVMA Online Store, located at: **www.zazzle/wavma788** is ready for your orders. This retail platform allows you to purchase some really neat gear with either our WAVMA logo or swoosh to help support our association. A portion of the cost is returned to WAVMA directly. The items you see on display were created to give you a small sampling of the hundreds of combinations available. You may order any item in different sizes and color combinations as listed for each item.

You may also add your business logo or student chapter logo, along with your name. Or simply add a personalized title or phrase. Also note that in many color combos, our logo shows up framed in white. I have been assured that on the clothing ordered in color, the background of the logo will be clear, not white. If you see an item you would like with our logo or swoosh that is not yet pictured, please contact me at cypcarpio@aol.com and I will set it up.

Also, please remember we have **white logo polo shirts** and **member self-stick window decals** in stock and available for order on our wavma.org website. Click on the shop tab to order these items.

Mug with
WAVMA logo
$15.95 per mug

WAVMA Ladies V-neck tee $24.95

WAVMA 2014 R. Loh Tee shirt $20.95

Sport Tek long sleeve WAVMA shirt $29.95

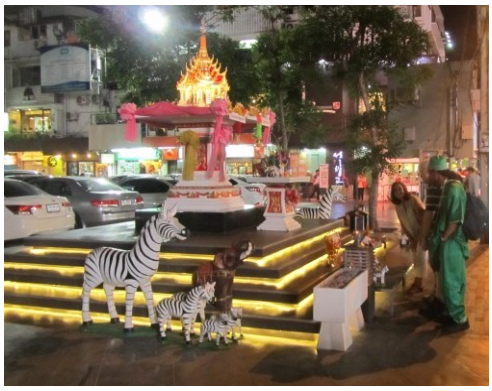
WAVMA Meeting at the WSAVA Congress

Our debut aquatic program at the World Small Animal Veterinary Association Congress, held May 15-18, 2015 in Bangkok, Thailand, was truly a memorable event for Terry and myself, along with a group of our members, including several members of the Executive Board. Traveling to Asia to present aquatic medicine lectures as part of our co-sponsoring of this Congress, we all had a wonderful opportunity to both savor the food and culture, as well as meet many of our members from Thailand and neighboring countries.

This included a tour of the Aquatic Animal Hospital of the Faculty of Veterinary Science of Chulalongkorn University in Bangkok and a visit to Siam Ocean World Bangkok. Having been to many public aquaria in North America and Europe, I expected to see the usual inhabitants. To my surprise, I was introduced to many new and wondrous specimens that I had never seen before!

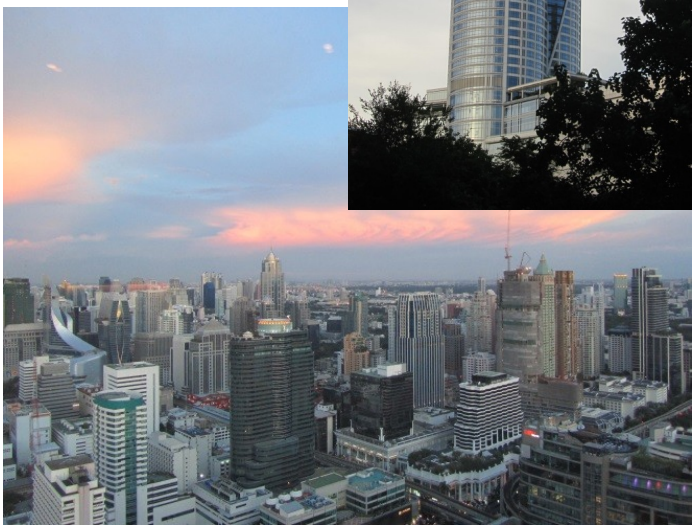
We arranged a Meet and Greet dinner evening for the members of the WSAVA Executive Board and Assembly. This dinner was held Thursday May 14, 2015 at Ban Khun Mae Restaurant in Patumwan District, Bangkok.

The evening featured traditional Thai mixed drinks, followed by several courses of exotic Thai cuisine. We were treated to traditional Thai music throughout the evening.



Wandering back to the hotel after dinner, we came upon one of the many shrines to be found throughout the city.

The conference hotel was spectacular, very modern but with traditional Thai hospitality. The view from the 50th floor afforded an appreciation of the vastness of Bangkok!



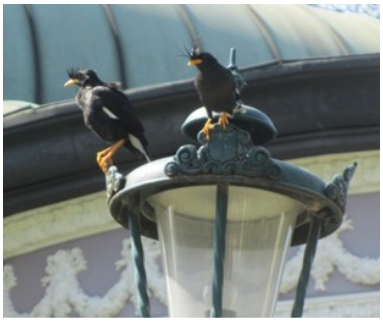
Julius M. Tepper
Meetings Committee Chair
cypcarpio@aol.com

Now that's a lamp-post!

Julius and Terry Tepper

And even Uber has arrived: Thai style!

Some views of the king's summer palace grounds



Native Mynah birds on a street lamp

Ancient statues and temples

COMMITTEE REPORTS

WAVMA Student Chapter Report: University of Florida

Members of the WAVMA Student Chapter, as part of the University of Florida (UF) Aquatic Animal Health Club within the College of Veterinary Medicine, had an active 2014 Fall semester! The group hosted three separate UF College of Veterinary Medicine faculty members that presented programs on the UF Aquatic Animal Health certificate program, anesthesia in marine mammals, and sturgeon health and conservation.

The club also went on trips throughout the state. At Rainbow River, the group worked with Eckerd College researchers studying the health of freshwater turtle populations. Students participated in capturing various turtle species and performed basic physical exams, phlebotomy, radiology, and PIT-tagging. In November, the group traveled to Mote Marine Laboratory and toured the Whale and Dolphin Hospital and reviewed the case histories of the rehabilitating sea turtles. They also received tours of the cephalopod and sygnathid research systems and discovered the challenges with breeding these creatures in managed environments. Finally, they explored the Mote Aquarium exhibits. The group hopes to continue discovering the world of aquatic animal health in the spring semester!

Here is the list of the current 2014-2015 officers:

Megan Strobel (President)
Shelby Loos (Vice-president)
Kirstin Cook (Treasurer)
Staci Spears (Secretary)
Brian Vagt (Outreach Coordinator)
Jacqueline Dolan (Events Coordinator)

WAVMA Student Committee Report

Progress since 3/25/15 meeting:

The mentor program has begun moving forward. We are waiting to hear back on creating a page on the WAVMA website for the program. Until then we are finalizing the documents that will be used.

A plan for submissions to the Newsletter by student committee members has been made. There should now be at least one submission for each quarter, though it may not always relate to student committee business.

The externship listing is being updated in its current state until we hear back from Dr. Stephen Riechley on the WAVMA externship database being put together. We plan on working together with him to have an updateable Externship Listing on the WAVMA website.

A questionnaire for the student chapters is being made to get feedback on multiple topics including: chapter events, funding, outreach, and membership.

Topics that are pending:

IVSA student committee representative: We need more information, but this should be resolved shortly.

Sponsors for student chapters: We proposed a project to secure sponsors for student chapters to use. The plan is to have the committee secure the sponsors with an agreement that could state what kind of support they would be willing to give (funding, sponsor meeting, products) and how much (number of chapters sponsored, etc.). That information could then be sent to the chapters. They would still have to contact the sponsor as individual chapters to receive support. This is more of a plan to get information out there, and to keep things organized for both chapters and the companies.

Having a Student Chapter Liaison from within the Student Committee to coordinate all of the Student Chapters and keep the officers up to speed with the goings-on of the Student Committee, as well as to get feedback. There is a list-serv for all the contacts from each Student Chapter; most likely it needs updating as Chapter officers change.

Justin Krol
Student Committee Chair
justkrol21@gmail.com

Current WAVMA Student Chapters:

Murdoch University, School of Veterinary & Life Sciences (established 2014)
Faculty Advisors - Drs. Lian Yeap & Richmond Loh. ***Chapter contact*** – click here
Auburn University, College of Veterinary Medicine (established 2013)
Faculty Advisor - Dr. Ray Wilhite
Chapter Contact - click here
St. George's University, School of Veterinary Medicine (in development)
Tuskegee University, School of Veterinary Medicine (established 2012)
Faculty Advisor - Dr. Kenneth Newkirk
Chapter Contact - TBA
University of Florida, College of Veterinary Medicine (established 2013)
Faculty Advisor - Dr. Tom Waltzek
Chapter Contact - TBA
University of Illinois, College of Veterinary Medicine (in development)
University of Prince Edward Island, Atlantic Veterinary College (in development)
University of Tennessee, College of Veterinary Medicine (established 2012)
Faculty Advisors - Dr. Michael Jones & Dr. Debra Miller ***Chapter Contact*** - click here
View the Chapter's Facebook page
University of Wisconsin, College of Veterinary Medicine (in development)
Western University of Health Sciences, College of Veterinary Medicine (established 2014)
Faculty Advisor - Dr. Suzana Tkalcic
Chapter Contact - click here
University of Nottingham, School of Veterinary Medicine & Science (in development)
University of Sydney, Australia (NEW)
Ross University (NEW)

*For information or assistance, please contact the **WAVMA Chapter Coordinator***

To initiate a new Student Chapter see the **"Guidance for Forming a New Student Chapter"** (**click here** to download PDF).

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

SCHOLARSHIP COMMITTEE:
2014 WAVMA/AVMF/AVMA Aquatic Veterinary Education Grant Recipient Reports

Kendra Baker
(DVM Candidate 2015, St. George's University)

The Aquatic Veterinary Education Grant was used to fund an external rotation in the Fisheries and Aquaculture Department at the Food and Agricultural Organization (FAO) of the United Nations in Rome, Italy.

I worked under the supervision of Dr. Melba Reantaso who is the Fishery Resources Officer and my main project was to co-write a paper with Melba entitled "Global ornamental fish trade: a review of the international sector with an emphasis on disease transmission and risk analysis."

In addition to literature review and contacting the competent authorities in multiple countries regarding their ornamental fish trade, I also worked with another intern from South Korea on developing a publication for risk analysis at the farm level utilizing HAACP principles.

I was able to attend multiple workshops and seminars including "Areas beyond National Jurisdiction", specific Fisheries and Aquaculture seminars on topics chosen by the staff, and International Women's Day at IFAD.

At the end of the six weeks I performed a seminar covering the information I had gathered for the paper. It is still in the editing process but we plan on submitting it for publication within the next 6 months.

I wanted to take the opportunity to thank WAVMA again for your generous scholarship; I would not have been able to participate in this externship without your help.

Hillary A. Wolfe
(DVM Candidate 2015, Kansas State University)

My WAVMA education grant was used to complete a month long veterinary externship at SeaWorld Orlando in March of 2015, during my final year of vet school. This rotation allowed me to gain plenty of hands-on experience and invaluable knowledge.

During my time at SeaWorld, I participated in numerous procedures with a wide array of species. In the first week of my externship I was included in a manatee release. Streak the manatee was successfully rehabilitated for cold stress and released back into Blue Springs, Florida.

In general, each day often included multiple stranded turtle examinations and scheduled annual examinations on species such as manatees, walruses, dolphins, sea lions, and birds. I was involved in full body examinations, blood work, radiographs, and wound care on the stranded sea turtles and wild birds. Special procedures I participated in included phlebotomy on a dolphin with iron storage disease, a penguin endoscopy and a manatee caesarian section. We also performed a dental cleaning on an otter as well as preen gland expression on a penguin, both under anesthesia.

Thanks to WAVMA, I was able to travel to Florida and complete this externship that provided me with a valuable learning experience each day!

Melyssa Allen (a dolphin trainer, left) and Hillary Wolfe (right) in Shamu stadium.

Noelle Litra
(DVM Candidate 2015. Cummings School of Veterinary Medicine, Tufts University)

During one of my senior elective blocks at the Cummings School of Veterinary Medicine at Tufts University, I was fortunate enough to spend three weeks in the preceptor position at SeaWorld San Diego. As someone who has had a passion for aquatics my entire life, developing a desire to practice aquatic medicine did not take long after starting vet school. After taking the AQUAVET I-III courses, I was eager to get into an aquarium setting during my clinical year.

On my first day at SeaWorld San Diego I hit the ground running. The recent sea lion strandings in California have led to an exceptionally high number of beached animals in a very short time period. After a hectic morning full of dolphin transport and radiographs, I was instructed to be a "tourist" for the remainder of the day. My task was to experience the park as guests do, viewing exhibits from a guest's perspective, and seeing the animal shows firsthand. Afterward, I submitted a two-page critique of my experience in the park for the veterinarians, as well as the animal keepers.

My first week at SeaWorld flew by. The start of the week was spent working with the stranded sea lions, along with several elephant seals in the quarantine area. I also took part in the sorting of white spotted bamboo sharks. This entailed temporarily removing them from the exhibit, getting and total count, and segregating any with medical issues for further workup later in the week. Their maladies included proliferative tissue, particularly around the claspers, and exophthalmia. The week was concluded with observations of ultrasounds and blood draws on white tip reef sharks for a research project. Though an exciting week, the highlight was the polar bear artificial insemination. This procedure included the entire veterinary team, along with many keepers and security. It was a wonderful demonstration on how teamwork is imperative in aquarium medicine to keep people and animals safe.

Week two included many more sea lions, but also observing blood draws on orcas. This gave me a great opportunity to see how the whales are trained for certain medical procedures, and to see their connections with the trainers. I also participated in the necropsy of one of the white spotted bamboo sharks that we looked at the previous week. This shark had a large proliferative mass in the oral cavity, extending into the gills, and even protruding from the spiracle. Aspirates and cultures of these lesions were sent in for laboratory evaluation, as it was unclear at the time even what structure the mass originated from. Additionally, I had the opportunity to observe blood draws on several young gentoo penguins for sexing, and participate in anesthesia and a full workup on one of the collection's sea lions, who presented for anorexia, and difficulty using her back flippers. Spending the morning with the keepers of the shark exhibit concluded my second week. There, I learned about their diets, observed a feeding, and spent some time in the food room where the diets for almost all the exhibits are prepped midday.

Week three came and went just as quickly as the previous weeks. It was started by participating in a necropsy on a stranded sea lion with diffuse subcutaneous emphysema. Necropsy revealed a punctured lung resulting in pneumomediastinum and the emphysema seen on physical examination. During this week I also participated in the release of 22 rehabilitated sea lions near the Mexican border. It was incredibly rewarding to see the end result of the continuous veterinary care and hard work by the keepers. This week also consisted of ophthalmic exams on Humboldt penguins, puffins and an Asian small-clawed otter, with the opportunity to do anesthesia for the latter. My time at SeaWorld San Diego was concluded with endoscopy and ultrasound on a 5-year-old beluga whale with a history of decreased appetite, and bill repair on a penguin.

Overall, I feel very fortunate to have been given the opportunity to spend time at SeaWorld San Diego. I was able to see a wide variety of aquatic animals and assist in the tremendous rehabilitation efforts of SeaWorld. My time there has further increased my love of marine animals, and passion to practice aquatic veterinary medicine in the future.

WAVMA is on Facebook!

Find us 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.

SCHOLARSHIP COMMITTEE:
2014 WAVMA/AVMF/AVMA Aquatic Veterinary Education Grant Recipient Reports

IUCN World Parks Congress:
My First International Experience

Najim Sekh
(BVSc&AH 2016 Candidate,
Tribhuvan University, Nepal)

Attending the IUCN World Parks Congress in Sydney, Australia (12-19 November 2014) was milestone in my life. It was a versatile platform for learning and sharing innovative know-how among 5000 delegates under the same roof. The theme of the IUCN WPC was "Parks, People and Planet: Inspiring Solutions". Thanks to John Pitts Scholarship Special Award, I got the ace opportunity to be there.

It was my first international Conference. Moreover, I was the youngest delegate there. There were many events like plenary discussions, field trips, pavilions, World Leaders' Dialogues, along with eight different streams. I was mostly engaged in the ocean pavilion as it could enhance my knowledge in Aquatic Veterinary Medicine. There were many distinguished scholars like IUCN President Mr. Zhang Xinsheng and the IUCN Director General, Mrs. Julia Marton. One of my greatest achievements was meeting with honorable Mr. Oswaldo Rosero who encouraged me to get in marine projects in WILDAID organization. I will work there during the last semester of my veterinary degree as an intern.

The following were the topics of special interest to me at the IUCN World Parks Congress:

- Strategy for the creation and management of Marine protected area (MPA).
- Reef fish Spawning.
- Community – based ecosystem approach to fisheries management.
- Integrated Mangrove fishery farming.
- Fisheries co-management and disaster risk reduction.
- Strengthen governance of small-scale fisheries.
- Best management practices for silvo- aquaculture.
- Sustainable Development through sustainable fish feeds.
- Balanced Harvest strategy for fisheries management.
- Ocean Health Index of the world.
- Fostering Coastal fisheries.
- Destructive fishing practices and its control measures.
- Aquatic alien invasive species identification, prevention and control measures.
- Food and Medicine from sea.

In addition, I also visited Sydney Sea Life Aquarium. I got a superb chance to observe sea life. Thus, my desire further aroused. I learned about modern technique of breeding and rescuing marine aquatic animals. I had actively participated in all streams and pavilion discussions related to an aquatic carrier.

Lastly, I am indebted to WAVMA that had granted me an international roof for my aquatic career. I am proud to be part of the WAVMA.

COMMITTEE REPORTS

Jenna D. Roseman
(2015 DVM Candidate,
Western University of Health Sciences)

Veterinary students are incredibly fortunate to be faced with the multitude of career paths that veterinary medicine has to offer, but, in just a handful of years, how is a student to truly understand the career opportunities available? Students with an interest in aquatic veterinary medicine must be proactive in seeking learning experiences and gaining exposure to career paths that exist along the less than obvious, but incredibly rewarding, career paths to becoming an aquatic veterinarian.

Allow me to take a moment to share some of my learning experiences in aquatic veterinary medicine obtained during my final year of veterinary school and made possible by the Aquatic Veterinary Education Grant Program.

Thanks to contributors on the WAVMA listserv, I was made aware of a great learning opportunity at the Idaho Fish Health Center in Orofino, Idaho. While many veterinary students may not realize the potential veterinary opportunities in fish health, it is clear that the field is facing a transition period characterized by increasing awareness of the importance of fish health, from both the conservation and food supply perspectives.

At the Fish Health Center I was privileged to work with a great team of scientists under the preceptorship of their veterinarian, Dr. Marilyn Blair, who is fondly known as “Guppy”. At the center I participated in monthly health monitoring, responded to hatchery health concerns, performed necropsies and sample collection, and assisted in spawning and health surveillance. I also received training with regards to pathogens of concern in fish health and participated in virology, microbiology, histopathology, PCR, and parasitology work. The professionals at the Fish Health Center took time whenever possible to discuss important topics with me, such as relevant regulations and policy, and were always willing to answer any facility related or medical questions that I had. Overall, this experience allowed me to gain a more in-depth understanding of the veterinarian’s role in aquatic medicine within this niche. The training I received was invaluable and was greatly enhanced by the Idaho Fish Health Center’s knowledgeable and dedicated staff.

In February I spent one month working alongside the dedicated veterinarian, volunteers, and staff, as well as visiting veterinarians and trained aquatic mammal professionals, at the Marine Mammal Care Center of Fort McArthur in San Pedro, California. As many of you are already aware, California began the 2015-year with a pattern of unprecedented numbers of sea lion strandings. Needless to say, my time at the center was busy. My responsibilities varied depending on the needs of the day and the educational opportunities that presented, and the guidance and supervision I received by Dr. Palmer was exemplary. Dr. Palmer was able to provide me with training and additional reading material on a variety of important topics, including relevant zoonotic diseases and regulatory information for stranding and rehabilitation facilities. She also provided every opportunity for me to engage in the activities at the center.

Jenna Roseman during Idaho salmon hatchery spawning

By the completion of my experience, I had participated in completing examinations of sea lions upon intake and administering appropriate medical treatments, responding to health concerns throughout the center, assessing rehabilitation progress, and discussing biosecurity measures. I also assisted in examining and preparing rehabilitated animals for release, performing sample collection, completing necropsies, reviewing diagnostic tests, obtaining and interpreting radiographs, and assisted in releases.

Looking back at my clinical experiences throughout my final year of veterinary school, I am grateful to have been able to work alongside and learn from such knowledgeable and dedicated veterinary professionals. The support that the WAVMA offers veterinary students interested in learning more about the fascinating and challenging world of aquatic veterinary medicine should not be overlooked. I urge all veterinary students interested in pursuing a career in aquatic veterinary medicine to seek out the learning experiences that are available. I would also equally urge all aquatic veterinary professionals to express any willingness to take on students interested in learning more about aquatic veterinary medicine, as the opportunities can be difficult to find. The potential learning experiences are out there, and the support provided by programs such as the Aquatic Veterinary Education Grant Program are invaluable as contributors to the future of aquatic veterinary medicine.

WAVMA CEPD Webinars

June 2015
B-1012 Cuttlefish (Sepia) Diseases. Squid/ cuttlefish pathology. Description of *Vibrio alginolyticus* infection in cuttlefish with references to anatomy and histoanatomy
Speaker: Dr. Cheryl Sangster

Description

The presentation will introduce participants to the general anatomy and histoanatomy of the cuttlefish (Sepia spp.). Using this knowledge, we'll examine a case study of *Vibrio alginolyticus* infections in these animals and how the anatomy and physiology help explain the pathogenesis.

Learning Objectives

General understanding of basic cephalopod anatomy
Introduction to cephalopod histoanatomy
Common sites of infection by *Vibrio alginolyticus*

Speaker Biography

July 2015
B-1013 Koi Winter Diseases. Seasonal koi health
Speaker: Dr. Julius Tepper

Description

Many factors must be analyzed when doing a complete veterinary diagnostic workup for a pond problem. In areas where two distinct seasons are characterized by a warm metabolically active and cold metabolically inactive period, the diagnostic workup should account for these variable factors. This presentation will explore the variables seen during the cold season and the problems that often result from them.

Learning Objectives

1. To understand the dynamics of the physical and biological variables in koi ponds seen during cold weather.
To understand the negative effects these variables can have on koi health.
To learn what can be done to mitigate these negative effects.

Speaker Biography

Dr Tepper graduated with honors from the University of Liege in Brussels, Belgium in 1976, practicing as a small animal- exotic practitioner in New York ever since and opened the Long Island Fish Hospital in 1998 to care for the health of pet fish. He served as Treasurer of the International Association for Aquatic Animal Medicine from 2006- 09, and as a member of the Executive Board of the World Aquatic Veterinary Medical Association (WAVMA) since its formation in 2006 through 2012, and as President in 2011. He became a WAVMA Fellow in 2012 and a certified aquatic veterinarian (CertAqV) in 2013.

August 2015
B-1014 Diseases of Farmed Saltwater Crocodiles in Australia
Speaker: Dr. Cathy Shilton

Description

The presentation will provide a brief introduction to saltwater crocodile (*Crocodylus porosus*) farming in Australia followed by an overview of their diseases from a pathology perspective. The presentation may be of general interest as an overview to this industry, or of interest from the aquaculture perspective of mass rearing of a large reptile in captivity, or of interest to aquatic animal or reptile disease experts or pathologists. Pathology images will be limited to gross images (no histopathology).

Objectives

Gain familiarity with the crocodile farming industry in Australia
Gain familiarity with the diseases of farmed crocodiles

Speaker Biography

Dr Shilton started her career as a mixed practice veterinarian before going on to complete a residency specialising in zoo and wildlife medicine and pathology at the University of Guelph in Canada. For the past 13 years, she has worked as a veterinary pathologist for the Northern Territory Government in Australia, during which time she has seen hundreds of laboratory diagnostic submissions from the regional crocodile farms, as well having collaborated on numerous crocodile-related research projects. Dr Shilton is co-chair of the veterinary section of the International Union for the Conservation of Nature Crocodile Specialist Group.

18th September 2015 6.00pm GMT
B-1015 Vets in Fish Conservation. Aquatic Veterinarians and Fishery Conservation
Speaker: Prof. Mohamed Faisal

Description

In their hostile aquatic habitat, fish are subjected to a multitude of stressors. As a result, many fish species have extirpated or at the brink of extinction. Over the last three decades, bacterial and viral pathogens have decimated fish populations throughout the world and the sight of miles-wide mats of dead fish became very common in marine and freshwater environments alike. This presentation gives an overview of conservation medicine as an emerging discipline with an emphasis on the role played by aquatic veterinarians in rehabilitating wild fish stocks and managing fish health issues.

Learning Objectives

- Understand the discipline of Conservation Medicine
- Understand the role played by pathogens in causing serious fish kills.
- Understand the role played by aquatic veterinarians in saving fish species from extinction

Speaker Biography

Professor Faisal started his aquatic veterinary professional career in 1977, when his doctoral thesis at the Veterinary School of the University of Munich, Germany, focused on the Spring Viraemia of Carp Virus. Since then he practiced aquatic veterinary medicine in academia where he combined field observation, clinical examination, and laboratory studies harmoniously. His clinical experience included teleosts, mollusks, and amphipods. His research focused on understanding the host-pathogen intricacies. Currently, he directs the Aquatic Animal Medicine Program at Medicine, Michigan State University. He oversees all fish health issues for Michigan including fishery rehabilitation programs. He is proud to have served as WAVMA President in 2013.

5th October 2015
B-1016 Marine Ornamental Invertebrate Medicine
Speaker: Prof. Greg Lewbart

Description

Invertebrate animals comprise >95% of the animal kingdom's species, yet non-parasitic invertebrates are vastly underrepresented in the typical veterinary school curriculum. This lecture provides an introduction to some of the more prominent marine invertebrate groups (coelenterates, mollusks, crustaceans, echinoderms, and the horseshoe crab) and reviews the state of the science with regards to clinical techniques. Areas of emphasis include taxonomy, anatomy, physiology, anesthesia, diagnostic techniques, and clinical management.

Learning Objectives

- Describe the differences between the major marine invertebrate taxonomic groups.
- Describe how to work up a marine invertebrate case.
- Discuss the treatment and management options for the most common and important diseases and syndromes of captive marine invertebrates.

Speaker Biography

Greg received a B.A. in biology from Gettysburg College in 1981, an M.S. in biology with a concentration in marine biology from Northeastern University in 1985, and a V.M.D. from the University of Pennsylvania, School of Veterinary Medicine in 1988. He worked for a large wholesaler of ornamental fishes before joining the faculty at the North Carolina State University College of Veterinary Medicine in 1993, where he is Professor of Aquatic Animal Medicine. He's a diplomate of the American College of Zoological Medicine and was named 2007 Exotic DVM of the Year by ExoticDVM Magazine. In 2012 he received the William Medway Award for Excellence in Teaching from the International Association for Aquatic Animal Medicine.

Greg is an author on numerous popular and scientific articles about invertebrates, fishes, amphibians and reptiles and speaks locally, nationally and internationally on these subjects. He's also authored or co-authored over 20 book chapters related to veterinary medicine of the above-mentioned taxonomic groups and edited or co-edited three veterinary textbooks: Self-Assessment Colour Review of Ornamental Fish (Manson Publishing and ISU Press, 1998), Rapid Review of Exotic Animal Medicine and Husbandry (Manson Publishing, 2008), and the multiple award winning Invertebrate Medicine (Wiley-Blackwell Publishing, 2006; 2012).

19th November 2015
B-1017 Elasmobranch (Shark) Medicine
Speaker: Dr. Rob Jones

Description

Elasmobranchs are the cartilaginous fish – the sharks and rays. They are commonly kept in public aquariums and the public have a fascination with them. They have significant differences from an anatomical viewpoint as well as physiologically - these basic differences will be covered.

I will also discuss some of the artificial reproduction research I have been involved with for the past 10 years. Finally, I will discuss some common problems seen in elasmobranchs in captivity as well as some of the wild shark rescues I have been involved with.

Learning Objectives

Understand elasmobranch anatomy and how it differs from teleosts

Understand elasmobranch physiology and reproduction and how it differs from teleosts

Examine some shark medicine cases and treatments

Speaker Biography

Since 1999, I have been working within the aquarium world. I now travel and consult to all the public aquariums in Australia and New Zealand and more recently internationally.

Commencing in 2003, I organized a research team working on artificial reproduction in sharks, which culminated in the first Artficial Insemination shark born in March 2014.

I also have developed the world's first online course for aquarists and others working in the aquarium and zoo industry (the e-quarist course) was launched in May 2011 and now has students on five continents.

Model of Great White Shark in Balboa Park Museum, San Diego, California. Photographed by Nick Saint-Erne

December 2015
B-1018 Fish Leukocytes
Speaker: Prof. Dušan Palić

Description

Leukogram is one of most common tools used during clinical evaluation of a patient. This would be true for the fishes as well, however, available information is scattered through scientific journals and some clinical textbooks, and focuses on just a few out of more than 35,000 fish species. Further, many instruments that are routinely used in blood cell analysis do not work well, or at all, with fish blood for multiple reasons such as presence of nucleated red blood cells. Because of this, it is important for a clinician who wants to practice on (especially ornamental or pet) fishes, to learn how to distinguish the leukocytes in fish blood smears. This presentation on fish leukocytes will provide a practicing aquatic veterinarian with information how to take advantage of blood smears to collect more information about health status of fish.

Learning Objectives

Veterinarian will understand the value and limitations of the fish blood smear.

Veterinarian will become familiar with major leukocyte types in fish.

Veterinarian will be able to prepare tools for collection and use rapid staining techniques to produce a readable fish blood smear.

Speaker Biography

Prof. Palić is a third generation veterinary professor, who fell in an aquarium when he was two years old. He has his life focused on aquatic animal veterinary medicine since. Dušan has been involved in teaching, research and extension/practice in fish for over 20 years, and has participated in number of initiatives to enhance veterinary workforce in the area of aquatics. He is a founding WAVMA member, fellow and past president, and also a Cert AqV. Dušan also is a founding diplomate of European College of Aquatic Animal Health (ECAAH). He participated in development of USDA NVAP (veterinary accreditation program) aquatic modules. He served on multiple committees, including World Veterinary Association Communication work group, and has organized many events.

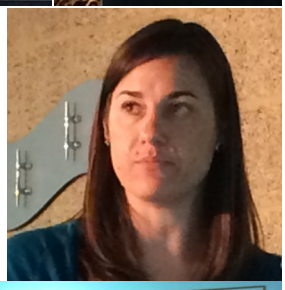

WSAVA Bangkok
May 15-18, 2015
Photos by Nick Saint-Erne
And Richmond Loh
40th WORLD
SMALL ANIMAL VETERINARY
ASSOCIATION CONGRESS

The American Association of Fish Veterinarians
2nd Annual Meeting in Chicago, Illinois
April 11, 2015

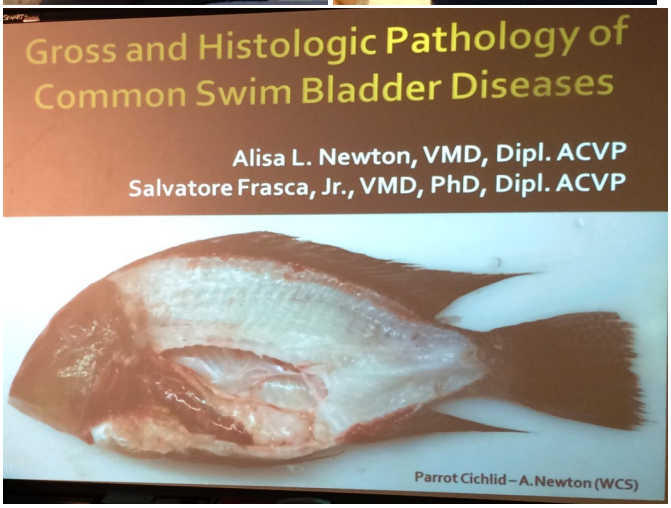
Our colleagues at the AAFV held their second annual educational meeting on Saturday following the IAAAM annual meeting in Chicago. The AAFV meeting was hosted by The Shedd Aquarium and provided a wonderful setting for a great educational event. All of the lectures were informing and pertinent to practicing veterinarians. The event was attended by a capacity crowd and lectures were also broadcast over the internet. Thanks to Brian Palmeiro who oversaw the operations of the event. The lectures were as follows:

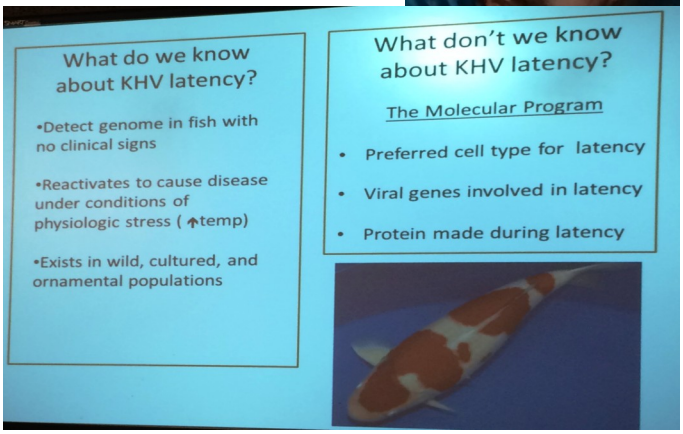
- Swim Bladder Physiology /Anat by Brian Palmeiro.
- Gross and Histologic Pathology of Common Swim Bladder Diseases by Alisa Newton.
- Swim Bladder & Buoyancy Disorders of Ornamental Fishes by Gregory Lewbart.

- Sygnathid Buoyancy Issues by Shane Boylan and Julie Cavin.
- Teleost Reproductive Biology and Techniques by Roy Yanong.
- Surgical Treatment of Reproductive Disorders in Fish by Helen (Roberts) Sweeney.
- Elasmobranch Reproductive Physiology, Disorders and Treatments by Julie Cavin.



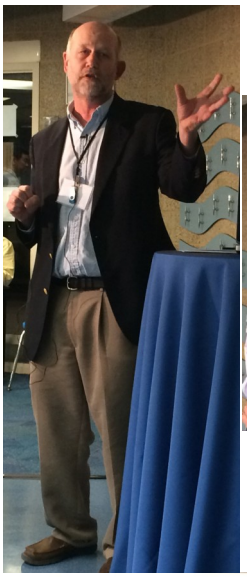
- The Molecular Latency of Koi Herpesvirus: A Diagnostic Perspective by Aimee Reed.

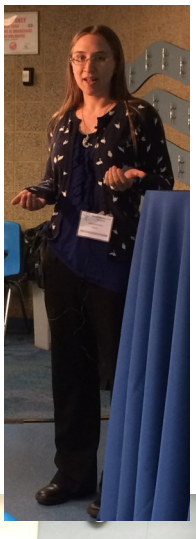




- *Edwardsiella ictaluri* infections in Ornamental Fish by Johnny Shelley.
- Piscine Mycobacteriosis: Overview and Updates by Kathy Heym.

- Ideas from The National Aquarium in Baltimore by Brent Whittaker.
- Supply and Demand For Aquaculture Veterinary Services by Myron Kebus.
- Fish Ophthalmology in Practice: Phacoemulsification in a Dollar Sunfish by Laura Adamovicz.





Below:
Attentive Audience

Right:
Happy attendees
Komsin Sahatrakul
and
Nick Saint-Erne.

- Fish Eye Tumors by Jessie Sanders.
- Carp Edema Poxvirus by Tom Waltzek.

- Clinical Cases: Trout and Tilapia by Myron Kebus:

"Rule #1 of Aquaculture: Keep fish wet!"

Pennsylvania has produced a plethora of piscine vets!

The American Association of Fish Veterinarians
2nd Annual Meeting at the Shedd Aquarium
Chicago, Illinois
April 11, 2015

Iconic downtown Chicago landmark: Marina City twin towers, round towers with semicircular balconies along the Chicago River.

Fatima and Jena Questen admiring the inhabitants of The Shedd Aquarium.

The Shedd Aquarium is conducting the Aquarium Microbiome Project to study the microorganisms that live in an aquatic environment, including in Pacific white-sided dolphins.
For more information, see: http://www.sheddaquarium.org/aquariummicrobiomeproject/

Attendees of the AAFV Conference listening to a lecture in the Shedd Aquarium meeting room.

The Shedd Aquarium—Chicago, Illinois

Doctors in the house

The Shedd Aquarium's on-site animal hospital means that veterinary care is just steps away from any one of the 32,000 animals from 1500 different species. Happily, because of our commitment to preventive healthcare, most visits with the doctors are regular checkups.

Compared with the body of medical knowledge about domestic animals, and even terrestrial zoo animals, aquatic animal medicine is a new frontier in veterinary science. Shedd's medical team, working closely with the animal care experts, have pioneered cancer chemotherapy in several types of fishes, MRI for high-voltage electric eels, dentistry for pufferfish, prenatal care of beluga whales, neonatal care for sea otters, assist feeding of sea stars and the growing veterinary specialty of geriatric care for a host of long-lived aquarium residents.

Shedd's medical experts are literally writing the book on the care of many species through scientific publications that reach the international community of veterinarians and biologists to advance the field of aquatic medicine.

Prevention is the best medicine

The aquarists and trainers practice preventive care every day as they monitor the health and behavior of the animals, alert for even slight changes so that the veterinarians can be notified to diagnose and treat any problems as early as possible.

Of course, the animal health team's goal is to keep problems from occurring in the first place. Preventive care for the animals includes regular physical exams, as well as dental, eye and prenatal exams where applicable, for every animal group, from the corals and jellies to the belugas and dolphins. These regular checkups allow the vets to collect baseline data for all the animals in our care. In addition, Shedd runs nearly 2,500 diagnostic tests, like routine blood panels and examinations of stool samples, every year to make sure the animals remain in top health.

Shedd Aquarium veterinarian Dr. Bill Van Bonn (VP of Animal Health) examines wing of a penguin that was having a difficult time trying to fly...

Shedd's animal healthcare center is one of the largest in the country. The A. Watson Armour III Center for Aquatic Animal Health and Welfare includes a full-service hospital with high-tech equipment familiar to any practitioner of human medicine, plus specialized veterinary features that would astonish him or her, supported by the environmental quality lab. The complex occupies 5,600 square feet on Shedd's mezzanine level.

Shedd's unique patients benefit from a wet-and-dry exam area, a full surgical suite and both wet and dry recovery rooms. In addition to conventional diagnostic imaging equipment, Shedd's hospital is equipped with specialized anesthesia equipment, including a machine custom-designed for fishes.

Information excerpted from Shedd website:
http://www.sheddaquarium.org/Animals--Care/Animal-Health-Welfare--Training/Veterinary-Hospitals--Labs/

One piranha got into the fray during feeding and came out with more than a bite to eat—a bite from another piranha! Observe the serrated teeth marks at the edge of the wound. Photo by Dr Mike Corcoran.

Photos taken at The Shedd Aquarium in Chicago
By Nick Saint-Erne, DVM, CertAqV

The Shedd Aquarium on the shore of Lake Michigan

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 AVNeditor@wavma.org.

Correction of intestinal microbiocenosis of Black Sea bottlenose dolphins (*Tursiops truncatus ponticus*) with probiotic remedies

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Abstract

Different probiotics are used to correct microecologic processes in digestive tracts. In human medicine, treatment of dysbiosis uses probiotic therapy: Colibacterin (P.P. Mechnikov Public Corporation "Biomed") containing *E.coli* M17; Linex («LEK» company, Slovenia) that includes *lactobacilli*, bifidobacteria and *enterococci*; veterinary preparation Vetom 1.1 (research and production company "Research Center", Novosibirsk, Russia), which is immobilized freeze dried spore biomass of *Bacillus subtilis*, culture VKPM -7092, producing interferon. The aim of our research was to study application of probiotic therapy for treatment of dysbiotic conditions of dolphins using Colibacterin, Linex and Vetom.

The subjects were 5 Black Sea bottlenose dolphins (*Tursiops truncates ponticus*) in ages of 5 to 20 years. They had been housed in captivity from 3 to 10 years. The samples of faeces were studied for quantitative and qualitative composition of microorganisms. In all, 22 samples from clinically healthy and sick animals were studied.

Use of Colibacterin contributed to a decrease in the number of animals that shed hemolytic *E.coli.* After cessation of its use, usually after 5-10 days, a relapse followed, and animals again showed symptoms of dysfunction of the digestive tract. Application of Linex resulted in similar effect: significant decrease of *Escherichia*, including hemolytic ones, and an increase in amount of lactobacteria. Using Vetom in cases of dysbiosis of the Black Sea bottlenose dolphins ensured stabile positive picture in both quantitative and qualitative composition of obligate microflora.

Results of this probiotics test show that in mild dysbiosis accompanied with decrease and instability of alimentary and motion activity, and a decrease in amount of lactobacteria in distal part of intestines of dolphins, the use of Vetom was the most effective treatment, because the therapy of other probiotics had no constant and apparent clinical and microbiological effect.

Key words: bottlenose dolphins, probiotics, dysbiosis, obligate microflora, lactobacilli, bifidobacteria, enterococci, *Escherichia coli*, *Bacillus subtilis*.

Introduction

Modern oceanariums are complicated engineering structures that include complexes of sea basins, water cycling and refinement systems, containment places for various sea mammals, facilities for medical treatment, feed-preparing and personnel support. Besides exhibition of sea dwellers, scientific and nature-conservation efforts, most oceanariums carry out social activities in the form of performance of trained animals. Because of that, physical health of dolphins is of great importance, since an ill animal loses normal motion activity, and time of its performance is either reduced, or ceased altogether. There are fatal cases of dolphins, mostly related to deceases of lung and gastrointestinal tract functioning (Yablokov et al, 1972).

Birkun (2002) described severe changes in qualitative and quantitative structure of gut organisms that occur in dolphins in captivity, and most of the dysfunctions of their digestive systems are related to development of dysbiotic conditions.

We discovered (Semenov V.A., Romanov V.V., 2004; Semenov V.A., Terekhov V.I., 2004), that base of resident microflora of distal part of intestine in wild bottlenose dolphins consists of coliform bacteria (6,3 ± 1,15 lg CFU (colony-forming unit)/g), lactic-acid bacteria (5,7 ± 0,95 lg CFU/g) and clostridia (5,3 ± 1,64 lg CFU/g). For those bottlenoses that were adapted to captivity it is clostridia (6,1 ± 0,66 lg CFU/g), coliform bacteria (4,5 ± 0,39 lg CFU/g), staphylococci (4,4 ± 0,56 lg CFU/g), bifidobacteria (4,2 ± 0,78 lg CFU/g) and lactic-acid bacteria (3,6 ± 0,93 lg CFU/g). Dysbiotic conditions of captive bottlenose dolphins are characterized with significant increase of hemolytic escherichia, proteus, staphylococcus and candida albicans with simultaneous decrease of lactobacteria.

Different probiotics (Colibacterin, Lactobacterin, Bifidumbacterin, Linex, Vetom and others) are used to correct microecologic processes in the digestive tract. However, despite plenty of publications about positive qualities of probiotics and their effectiveness, there are cases when efficacy of their use is quite low.

The aim of our research was to study application of probiotic therapy for treatment of dysbiotic conditions of dolphins with help of Colibacterin, Linex and Vetom.

Materials and methods

Studies were carried out during 1999-2005 on the base of the Gelendzhik branch of Delphinarium of Utrish and Krasnodar VRI (Veterinary Research Institute). The subjects of observation were 5 Black Sea

bottlenose dolphins (*Tursiops truncates ponticus*) in age of 5 to 20 years, with length of captivity of 3-10 years.

Sampling of rectum contents for studying of qualitative and quantitative composition of microflora was performed with sterile plastic catheter with length of 500 mm and diameter of 6 mm (Fig. 1). The samples of faeces were studied for quantitative and qualitative composition of microorganisms. In all 22 samples from clinically healthy and sick animals were studied.

Figure 1.
Sampling of rectum contents of a bottlenose dolphin.

Inoculations of the faeces were carried out using standard and modified methods with tenfold dilution (Bochkov I.A. et al, 1989) with following mediums: MEA (meat-extract agar), Endo medium, blood agar, yolk-salt agar, Wilson-Blair medium, Blaurock medium, Kvasnikov chalk agar, Saburo medium. Presence of oxic spore and non-spore bacteria, enterobacteria, staphylococci, stepto-enterococci, clostridia, bifidumbacteria, lactric-acid bacteria and fungi was found using these mediums. Amount of microorganisms (lg CFU/g) was calculated using method of I.P.Ashmarin and A.A. Vorobyev (1962).

Identification of *Enterobacteriaceae* was performed with biochemical differentiation plates, and the computer program of the research and production company "Diagnostic Systems" (Nizhny Novgorod, Russia) was used for processing the acquired data.

Identification of the other microorganisms was performed by typical morphologic tinctorial and cultural properties using Bergi bacteria qualifier (1997) and references (Birger M.O., 1982).

Blood for studies was sampled from dolphins' caudal veins - *Superficial fluke vv*. General blood analysis consisted of counting of amount of erythrocytes, hemoglobin, leucocytes, leucogram and ESR (erythrocyte sedimentation rate) and it was performed using standard methods (Menshikov V.V., 1999).

Clinical condition of dolphins was estimated on basis of their behavioral, movement and alimentary response, as well as defecation characteristics.

In human medicine, treatment of dysbiosis uses probiotic therapy: Colibacterin (P.P. Mechnikov Public Corporation "Biomed") containing *E.coli* M17; Linex («LEK» company, Slovenia) that includes lactobacilli, bifidobacteria and enterococci; veterinary preparation Vetom 1.1 (research and production company "Research Center", Novosibirsk, Russia), which is immobilized freeze drying spore biomass *Bacillus subtilis*, culture VKPM-7092, producing interferon.

Dry Colibacterin is dissolved in 200 ml of boiled water and was fed to animals orally via feeding tube. Instructions for this preparation suggest up to 12 doses (0.17 doses/kg) for adult humans. This dosage was taken as a basis for dolphins. Daily dose was given in two intakes during a day. Duration of treatment depended on severity, duration and intention of dysbacteriosis.

Recommended dosage of Linex for adults was 2 capsules 3 times a day. Based on this, dolphins were given 4-6 capsules 3 times a day with forage.

Dried Vetom 1.1 was dissolved in 200 ml of boiled water according to instructions on the basis of 50 m/kg of live weight of an animal twice a day and was fed with a feeding tube.

Results and discussion

Results of use of probiotics (Table 1) have shown that in dysbiosis of light degree accompanied with decrease and instability of alimentary and movement activity, decrease in amount of lactobacteria in the distal part of intestine of dolphins, use of Vetom was most effective, because the therapy of other probiotics have shown no constant and apparent clinical and microbiological effect.

While use of Colibacterin contributed to a decrease in amount of animals that had shed hemolytic *E.coli,* concentration of their lactobacteria had not increased. Quite the contrary, a trend toward increase of proteus that may cause enteric infections of mammals was observed. (Pokrovskiy V.I., 1994). Because of that, all 10 cases of use of Colibacterin were actually ineffective. It was necessary to use the remedy for a long time (2-3 months) and after cessation of its use, usually after 5-10 days, a relapse had followed, and animals again showed symptoms of dysfunction of the digestive tract.

Table 1.
Efficiency of probiotic use in case of dolphin dysbiosis

Micro-organisms	Clinically healthy Black Sea bottlenose dolphins [a] (n = 14)	Colibacterin (n = 10)		Linex (n = 6)		Vetom (n = 6)	
		Before use	After use	Before use	After use	Before use	After use
E.coli Haemolytic	2,0 ± 0,84	4,4 ± 0,4 100	2,7 ± 0,88* 30	3,8 ± 0,67 100	2,8 ± 0,66 67	1,8 ± 1,17 33	0,7 ± 0,67 17
E.coli Non-haemolytic	3,2 ± 0,76	4,8 ± 0,2 100	5,9 ± 0,48 100	6,3 ± 0,67 100	4,0 ± 1,15* 100	5,0 ± 1,21 83	4,2 ± 0,98 83
Proteus	Not studied	2,3 ± 0,52 70	3,7 ± 0,72 80	2,3 ± 2,3 33	2,7 ± 1,45 67	1,2 ± 1,17 17	0,5 ± 0,50 17
Enterococci	2,1 ± 0,81	2,1 ± 1,11 30	3,8 ± 1,17 60	4,7 ± 0,88 100	3,6 ± 2,03 67	1,2 ± 1,17 17	1,8 ± 0,60 67
Staphylococcus aureus	Not studied	0,6 ± 0,4 20	0,8 ± 0,55 20	1,7 ± 0,88 67	0	2,7 ± 0,95 67	1,2 ± 0,54 50
Bifidobacteria	4,3 ± 0,96	5,4 ± 0,5 100	5,3 ± 0,4 100	5,0 ± 1,15 100	6,7± 1,45 100	3,0 ± 0,97 83	3,7 ± 0,88 100
Clostridia	6,0 ± 0,68	6,4 ± 0,52 90	7,2 ± 0,44 100	6,7 ± 0,67 100	7,5 ± 0,86 100	4,5 ± 0,89 83	5,8 ± 0,65 100
Lactic acid bacteria	3,6 ± 0,93	3,1 ± 0,28 100	4,3 ± 0,29 100	2,7 ± 0,33 100	5,6 ± 0,66* 100	0,8 ± 0,54 33	3,8 ± 0,60* 100
Fungi p.*Candida*	0,1 ± 0,07	0,3 ± 0,3 10	0,4 ± 0,4 10	0	0	1,7 ± 1,05 33	1,2 ± 0,65 50

Note: numeration of fraction – lg CFU/g of intestinal content; denominator – % of animals carrying particular microorganism; * - degree of certainty relatively to initial value (P < 0,05); n - number of measurements; [a] – Semenov V.A., Romanov V.V., 2004.

Use of Linex resulted in a similar effect. While the dynamic of change in the amount of supervised microorganisms had shown more positive effect (significant increase in amount of lactobacteria and decrease of Escherichia, including hemolytic ones), as soon as intake of preparation had stopped, a relapse followed, and treatment had to be resumed.

This fact most likely indicates that administered microorganisms transit the digestive system, with no attaching or reproducing at epithelium of dolphins' bowels. Thus, medical effect arises only from artificial increase of amount of obligate microflora and remains as long as animals are treated with these probiotic remedies.

Use of Vetom 1.1 was most effective. In this case we achieved a considerable decrease of *Staphylococcus aureus*, hemolytic *E.coli* and proteus in faeces, as well as significant increase of lactobacteria and an increase in level of clostridia up to the values appropriate of clinically healthy animals. Course of treatment was no more that 7-15 days, and the positive effect observed after cessation of intake was long-lasting. We must mention an important fact of decrease of staphylococci carriers among the animals. Use of this remedy was accompanied with significant improvement of animals' physical condition, increasing of alimentary and movement activity. Number of animals that had positive change of content of lactobacteria, bifidobacteria and clostridia reached 100 % after use of Vetom 1.1.

Indicative changes of hematological indexes of dolphins during use of Vetom 1.1 are shown in Table 2. As one can see from this table, number of eosinophils in dolphin blood had increased significantly, which may be evidence of normalization of haemopoiesis, increased vitality of eosinophils and lymphocytes and their resistance to toxins of pathogenic bacteria. Along with that, decrease of number of neutrophilic granulocytes and monocytes, which are markers inflammatory processes.

Thus, use of Colibacterin and Linex as correctors of intestinal microbiocenosis of dolphins didn't resulted in significant clinical and microbiological effect. It was necessary to give probiotics to animals for a long time (for month and more). Achieved result quickly gave way to symptoms of bowel dysfunction, while use of Vetom 1.1 resulted in long-term and significant therapeutic effect, confirmed with results of microbiological and hemotologic studies.

Therefore, it is advisable to use Vetom 1.1 in cases of dysbiosis of the Black Sea bottlenose dolphins, which ensures stabile positive picture in both quantitative and qualitative composition of obligate microflora.

Microbiologic faeces inspection allows detection of intestinal dysbiosis in dolphins at an early stage, before noticable pathological blood alterations occur. This allows the opportunity to undertake rational probiotic therapy without antibiotic remedy application.

Acknowledgments

We thank the many staff at the Utrish Dolphinarium, Mikrobiology Laboratory of Krasnodar research veterinary institute.

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Table 2.
Changes of hematological indexes of dolphins during use of Vetom 1.1

Time of blood sampling	Haemo-globin, g/l	Erythro-cytes, x10^{12}/l	ESR, mm/h	Leuco-cytes, x10^{9}/l	Band neutro-philes, % x10^{9}/l	Mature neutro-philes, % x10^{9}/l	Eosino-cytes, % x10^{9}/l	Mono-cytes, % x10^{9}/l	Lympho-cytes, % x10^{9}/l
Before use of Vetom (n = 10)	166,3 ± 3,03	3,78 ± 0,074	2,5 ± 0,62	7,9 ± 0,74	2,6 ± 0,91 / 0,205	62,5 ± 2,56 / 4,938	9,9 ± 1,64 / 0,782	3,6 ± 0,97 / 0,284	21,4 ± 1,84 / 1,691
After use of Vetom (n = 7)	165,1 ± 3,84	3,88 ± 0,09	2,4 ± 0,30	7,9 ± 0,33	1,4 ± 0,20 / 0,111	51,0 ± 3,85 / 4,029	17,9 * ± 2,04 / 1,414	2,4 ± 0,43 / 0,190	27,3 * ± 3,39 / 2,157

Note: numeration of fraction - relative amount of leucocytes, % denominator – absolute amount of leucocytes, x10^{9}/l; * - degree of certainty relatively to initial value (P < 0,05)

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See also:

Semenov V.A. & V.I. Terekhov (2014). Clinical and microbiological manifestations of intestinal dysbiosis in captive Black Sea bottlenose dolphins (*Tursiops truncates ponticus*). The Aquatic Veterinarian, Vol 8, (2): 20-25.

Distribution: *The subspecies Tursiops truncatus ponticus is endemic to the Black Sea and isolated from other populations of bottlenose dolphins in the Mediterranean and other waters* (Tomilin, 1967; Rice, 1998).

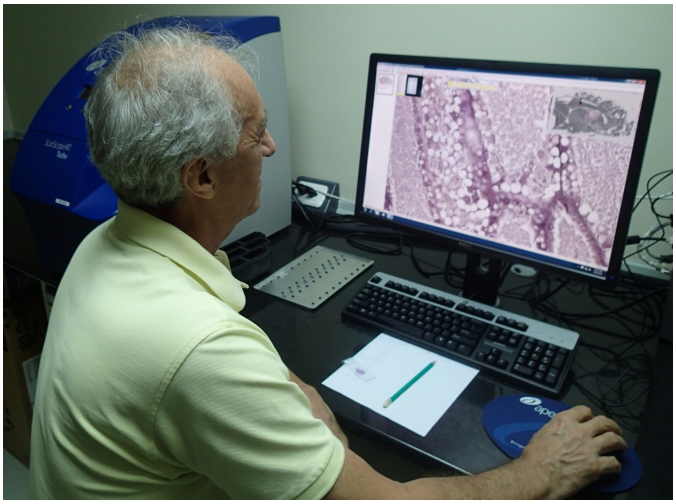
Visit to the Fish Vet Group Asia Ltd in Bangkok
By Richmond Loh and Nick Saint-Erne

After the WSAVA Congress, two of our members took the opportunity to visit the Fish Vet Group's Bangkok location. At the Fish Vet Group Asia Limited (FVGAL) headquarters, we met with Don Griffiths and Leo Galli and their tight-knit team, and were given an overview of the comprehensive range of services they provide, followed by a tour of the diagnostic laboratory.

Left to right: Todd King (Complete Aquatics), Don Griffiths (FVGAL Operations Director), Richmond Loh, Leo Galli (FVGAL Technical Director), Nick Saint-Erne.

Their team is involved with all aspects of aquatic veterinary care as a "one-stop-shop". Some of the services include the provision of diagnostic testing, biosecurity management, vaccinations, hatchery and farm management, genetics selection, research, product development and testing, and training. Their goal is to provide disease management in an Environmental, Economical and Ethical manner to their aquaculture clients.

Dr Leo Galli examines digital histopathology slides.



These services are made possible through their two sites: a diagnostic laboratory on Chaengwattana Road, Bangkok, and a wet laboratory and challenge test facility for both bacteria and viruses at Chonburi town, 2 hours southeast of Bangkok. The diagnostic laboratory is in a newly renovated 4-storey building, and has been operational for the last 9 months. The laboratory is equipped with every diagnostic tool expected in a complete laboratory, including traditional histopathology processing equipment, to the latest digital slide scanning and molecular tools.

The FVGAL understand that farmers also need their veterinary team on-site, and for a fast diagnostic service. To enable this, they are also equipped with mobile kits, including the iiPCR (simplified insulated isothermal reverse transcription PCR) which gives a semi-quantitative result.

Though the FVGAL office is distant from their European origins, they maximise technological advancements to be supported by their other offices in Oslo, Inverness, Portland (Maine, USA) and Galway, with future expansion into Chile and Brazil. In fact, their geographic location is strategically placed in proximity to regional offices of feed and pharmaceutical companies, the Network of Aquaculture Centres in Asia (NACA), FAO, SEAFDEC, the Asian Institute of Technology, Kasetsart University, Mahidol University, the Thai Department of Fisheries and its Aquatic Animal Health Research Institute (AAHRI).

We were impressed with the facilities, and they even treated us to a wonderful buffet lunch with their office staff after our tour!

South Dakota wild Goldfish (*Carassius auratus*) die off due to *Cyprinid Herpesvirus-2*

Regg D Neiger*, Todd St. Sauver, Pam Leslie-Steen
From the Department of Veterinary and Biomedical Sciences, South Dakota State University, Brookings, SD. (Neiger, Leslie-Steen) and South Dakota Game Fish & Parks, Sioux Falls, SD (St. Sauver)
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Abstract

In June 2010, a fish kill occurred in a small pond in Sioux Falls, SD. This pond's primary function is a storm water retention basin and the kill occurred a couple days after a big rain event. The influx of poor quality street runoff water was likely the stressor that started the fish kill. A high percentage of the fish killed were goldfish but dead Bullheads and Crappies were also seen. Mortality in these species is common during the transition from spring to summer in South Dakota's natural lakes and ponds. The goldfish first appeared in the pond about two years before the die off. The source of the goldfish is not known, however, the release of pet fish is a possibility. Dead goldfish were submitted to the Animal Disease Research and Diagnostic Laboratory at South Dakota State University for diagnostic workup by the South Dakota Department of Game Fish and Parks due to concerns about viruses that attack species such as Koi, Carp, and Goldfish. The Goldfish had *Cyprinid Herpesvirus-2* infection.
Key words: Cyprinid Herpesvirus-2; die off; fish; Goldfish.

Case Report

In the second week of June 2010, a fish kill occurred in a pond in Sioux Falls, South Dakota (SD). The die off involved a high percentage of goldfish but dead Bullheads and Crappies were also observed. This pond is about 6.5 hectares and very shallow with a maximum depth of 2.7 meters and mean depth of 1.8 meters. The pond's primary function is storm water retention, however, it is also managed as an urban fishery and has been stocked with a variety of game fish dating back to 1924. Since the main water source is runoff from urban residential and industrial streets, water quality is generally poor and fish kills are relatively common.

In 2005, a fish population survey documented the presence of the following species: Black Bullhead, Black Crappie, Pumpkinseed, Northern Pike, Yellow Perch, White Sucker, Golden Shiner, Green Sunfish, Bigmouth Buffalo, Bluegill, Channel Catfish, and Yellow Bullhead. No Goldfish were seen in 2005. It is believed they first entered the lake around 2008 and the assumed source was the intentional release of pet fish.

The fish kill in question occurred two days after a large rain event. This was likely the stressor that started the die off. Fish mortality events are common during the transition from spring to summer in SD natural lakes and ponds.

Dead goldfish were submitted to Animal Disease Research and Diagnostic Laboratory at South Dakota State University by the South Dakota Department of Game Fish and Parks for diagnostic workup due to concern with possible viruses that attack species such as Koi, Carp, and Goldfish. Seven dead, 6 to 8 inch long goldfish were presented to the diagnostic laboratory. Gross examination showed some of the goldfish gills had limited multifocal hemorrhages and pale foci that appeared to be necrosis. All fish had empty stomachs and gallbladders distended with bile. A couple of fish had edema and reddening of the lateral skin. Histologically, the gills had severe pleocellular inflammation with some proliferation and multifocal necrosis. There was severe multifocal meningoencephalitis with the inflammation most extensive in the meninges and the ventricles. The head kidney, kidney, and spleen had severe multifocal to coalescing necrosis of hematopoietic tissue. Many intranuclear basophilic inclusion bodies were also present.

Viral examinations included the collection of kidney, gill, and spleen from the goldfish and after processing inoculating EPC cells at 15ºC for VHS and EPC cells at 25ºC for SVCV, LMBV or KHV. After a week the EPC cells at 25ºC had cytopathic effect (CPE). Supernatant from the cell culture was filtered and put on EPC cells again and CPE was present again at a week. These cells were harvested and polymerase chain reaction (PCR) for VHS and SVCV was run and was found negative. Kidney, spleen, and gill homogenate was sent to Veterinary Diagnostic Laboratory at the University of Minnesota. It was examined for koi herpes virus with PCR and found to be negative.

Minnesota also put homogenate on KF-1 cells at 15 and 25ºC for 42 days being passed on day 14 and day 28 and the results were negative. Finally pools of kidney, spleen, gill, liver, and intestine were sent to Department of Medicine and Epidemiology, School of Veterinary Medicine, University of California, Davis for bacterial cultured and large growths of *Aeromonas hydrophilia* were isolated from all pools.

Samples of gill, liver, and spleen were also positive for Cyprinid Herpesvirus-2 (CyHV-2) using PCR. CyHV -2 causes Herpesviral hematopoietic necrosis (HVHN) in goldfish. It has been documented in multiple countries throughout the world including Japan, Australia, Taiwan, UK, and the USA. [1,3,4]

CyHV-2 can cause high mortality epidemics (up to 100%) and is restricted to goldfish varieties. Fish of all ages can be affected and outbreaks occur when water temperature is between 15º and 25ºC.[1] This virus is present in apparently healthy fish in the USA and is widespread on commercial goldfish farms.[3] Outbreaks usually occur when healthy carriers are subjected to stress.

Goldfish killed by this event showed classical pathological lesions of CyHV-2 virus and this was confirmed by the use of a PCR examination. There was no evidence of other significant primary pathogens and the *Aeromonas hydrophilia* isolated was likely a secondary pathogen.

The outbreak was preceded by a rainfall event that caused a large influx of poor quality street runoff water into the lake. Although water temperatures during this outbreak were not recorded, the rainfall event likely caused a significant change in water temperature due to the high volume of runoff into this small pond. It is known that water temperatures and changes of water temperature are significant factors for CyHV-2 proliferation in fish.[2]

Other species of fish killed by this event were not submitted for examination because it was assumed that the change in water quality was the most likely cause of their death. The CyHV-2 virus, like other herpes viruses, is very host specific and would not be the cause of mortality in Bullheads and Black Crappies.

A likely scenario is that at least some of the goldfish released into the Lake Covell were healthy carriers of CyHV-2 and originated from a production goldfish farm were the virus was endemic. The recent rain event altered the water quality in the lake that stressed the goldfish and triggered the fish kill.

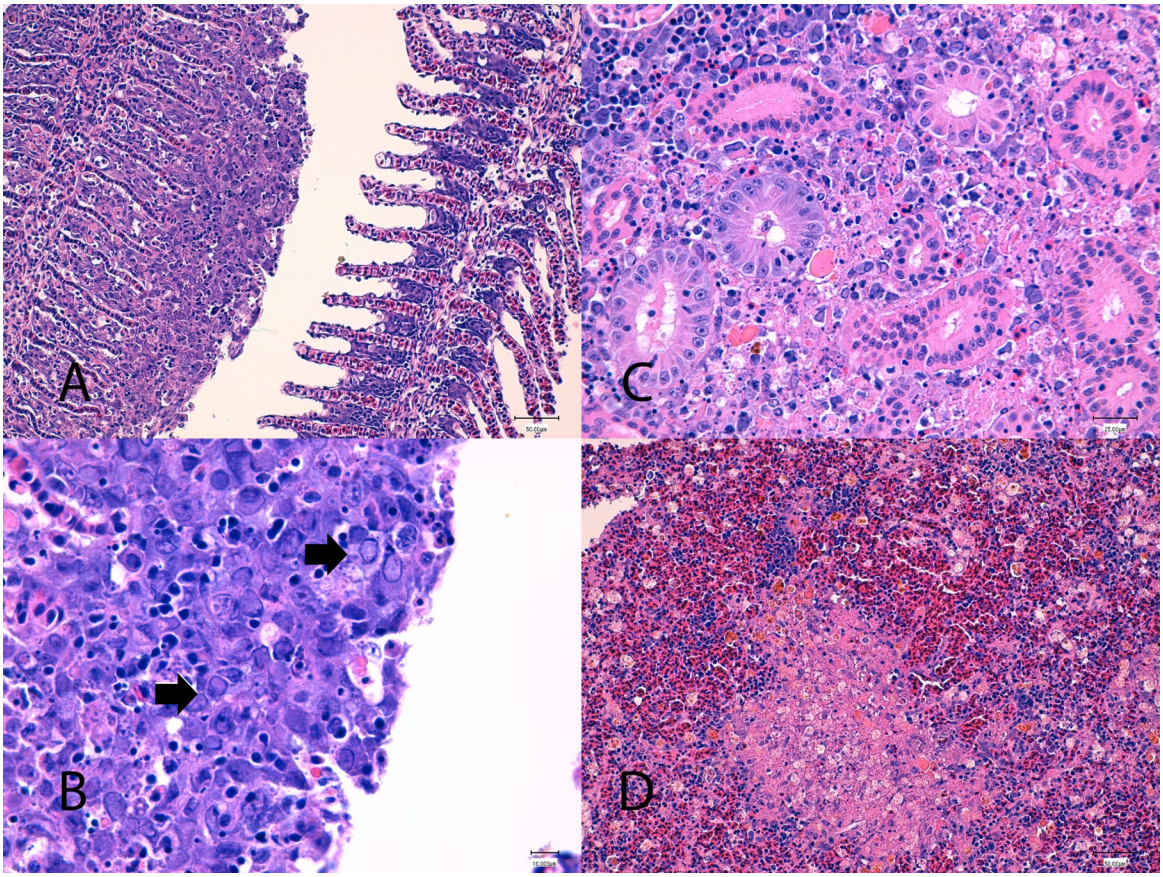

Figure 1. Goldfish tissue microphotographs demonstrating lesions due to Cyprinid Herpesvirus-2. **A**, gill with severely affected filament on the left. HE. Bar = 50 µm. **B**, higher magnification of left gill filament from A, arrows note intranuclear inclusion bodies. HE. Bar = 10 µm. **C**, head kidney with severe necrosis of hematopoietic tissue and sparing of nephron. HE. Bar = 25µm. **D**, spleen with multifocal necrosis of hematopoietic tissue. HE. Bar 50 = µm.

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1. Goodwin AE, Merry GE, Sadler J.: 2006, Detection of the herpesviral hematopoietic necrosis disease agent (*Cyprinid herpesvirus 2*) in moribund and healthy goldfish: validation of a quantitative PCR diagnostic method. Dis Aquat Org 69:137-143.
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Questions & Answers from the WAVMA Listserv (WAVMA_Members-L@wavma.org**)**

Ichthyophthirius in Koi in Hydroponic Culture

Hello to fellow WAVMA members,

I have been asked to consult on a case that is difficult. It involves a hydroponics setup which includes 90 koi fish that live in water which is used to feed plants. The plants are used for human consumption. (I am not sure of the variety of plants).

The problem is that the client has lost 10% of fish (possibly even more now) due to Ich and secondary *Aeromonas* infection (a veterinary pathologist has been involved). How to treat both Ich and the infection (most fish are having skin ulcers) - when the water is used to feed plants (human consumption)?

Ideas? I don't know much about regulation and which medications can be used. I have been primarily involved with ornamental fish.

Thank you!

Cindy Marnell, BVMS
Portsmouth, NH USA

Hi Cindy,

I suspect that any medication used to treat the koi in a bicultivation/hydroponic system where the plants are used for human consumption fall into the category of drug residue concerns and the question needs to be addressed with USDA. FARAD deals with Food Animal drug residue and withdrawal times, but I'm not sure if they would have information regarding plant residue and human consumption.

Regardless, it doesn't hurt to email both since there is an option to contact them on both websites listed below:
www.FARAD.org
www.USDA.gov

Another thought is treating the koi with prolonged salt immersions if the client is temporarily able to remove the plants from the system and use another water source. Salt will help with Ich and if the Aeromonas is external I could see that helping as well. Increasing water flow rate would also help reduce the load of the free swimming (theront) stage and help with managing the Ich infection.

Interesting case, let us know what you find.

Ronit Lavie, DVM
Conejo Valley Veterinary Hospital
2580 Willow Lane
Thousand Oaks, CA 91361
(805) 495-4671

I'm not sure there is good data anywhere on plant uptake of many antibiotics--including USDA regulations on this. I'm going to present this as a discussion point with the clinical pharmacology group here (My graduate work is in clinical pharmacology). I will post when I get some more information...

Jack Kottwitz DVM
586 Hoerlein Hall
College of Veterinary Medicine
Auburn University
Auburn, Alabama

Temperature can also be manipulated [increased to 84-86 degrees F] to disturb the ICH life cycle and reduce the parasite load significantly.
Diane McClure

I would suggest treating with Minn Finn as it is biologically safe [Hydrogen peroxide and peracetic acid] and the treatment is neutralized with sodium bicarbonate after one hour. Treatment should be repeated a minimum of 3 times. Food will remain safe for human consumption.
Check it out:
http://www.aquafinn.com/products-minnfinn_med_feed.htm

* Note: I am not a Vet*
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Emergency #: 818- 968-4486
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Cindy,

To address the Aeromonas, use in-feed antibiotics, but get some antibiotics sensitivity testing done too. For control of Ich, options include (but are not restricted to): formalin, copper sulphate (providing water is not soft and acidic) and hydrogen peroxide.

To reduce osmoregulatory stress in the fish, increasing salinity to 2 g/L [0.2%] is as much as plants can tolerate. Vitamin C to the system will also help at 10mg/L. Withholding periods will depend on a number of factors, checking with your regulatory body.

Dr Richmond Loh
THE FISH VET, Perth, Western Australia, .
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Parasite from L14 Plecostomus Gills

Hi WAVMA Vets,

I had a client send me a picture of his male 12-inch L14 plecostomus (*Scobinancistrus aureatus*). He can't bring the fish in at the moment and I can't get out to see the fish. Do you all think this could be an anchor worm protruding from the gill slit?

Please let me know what you think. What are people using to treat this in the U.S.? I am having trouble locating most products.

Thank you,

Michael Charney

Dear Michael,

I would first suspect on *Ergasilus* sp, in early stages (no developed of egg masses on the threads you see protruding) but certainly anchor worm (*Lernaea* sp) is not ruled out just based on images.

Dušan Palić, D.V.M., MVSc, Ph.D., Dipl. ECAAH
Professor and Chair of Fish Diseases and Fisheries Biology Faculty of Veterinary Medicine, Ludwig-Maximilians University Munich
Kaulbachstraße 37
80539 München
Deutschland
Email: d.palic@lmu.de

Ergasilus (Gill Maggots) and *Lernaea* (Anchor Worm) are crustacea and can be treated with the organophosphate Trichlorfon at 0.25-0.5 mg/L in the water every 5-7 days; or with Diflubenzuron (Dimilin) at 0.06 mg/L every 7 days. 2-3 doses of either would be recommended to be sure to get any residual parasites that hatch from eggs after the first treatment.

Both of these medications can be harmful to other invertebrates (snails, shrimp, insects) in the water, so care must be taken in the application in ponds.

A Tropical Aquarium Fish medication available in the USA is Tetra Parasite Guard that contains Praziquantel, Diflubenzuron, Metronidazole and Acriflavin. It is a dissolving tablet that treats 10 gallons of water. Good for aquariums, not too practical for ponds.

Nick Saint-Erne, DVM CertAqV
Certified Aquatic Veterinarian
Specialty Merchandising - Pet Quality and Education
PetSmart, Inc.
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office: 623-587-2935 | mobile: 602-568-1788 | fax: 623-580-6184
email: nsainterne@petsmart.com

Careful manual removal, then use in-water chitin synthesis inhibitors (lufenuron, diflubenzuron).

Lufenuron dose is 0.088-0.20 mg/L in the water, or 80 mg/kg food given one day and repeated in a week.

Yours sincerely,

Dr Richmond Loh
DipProjMgt, BSc, BVMS, MPhil (Pathology), MANZCVS (Aquatics& Pathobiology), CertAqV, NATA Signatory.
THE FISH VET, Perth, Western Australia, AUSTRALIA.
Mobile Aquatic Veterinary Medical & Diagnostic Services.
http://www.thefishvet.com.au

Dear all,

I am not a Vet but have cared for ponds for over 30 years. My experience to eradicate *Lernaea* is to very simply have *Gambusia* (Mosquito Fish) in the ponds with the Koi & Goldfish.

They will pick them off the fish, thus a symbiotic relationship is created. Compare to the pilot fish with sharks & whales.

I have yet to ever treat any pond for such.

Humbly yours,

Barbara D. Johnson
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AQUATIC VETERINARY ABSTRACTS
Topic: Emerging Viral Diseases
Complied by **Dr David Scarfe**

Host range, host specificity and hypothesized host shift events among viruses of lower vertebrates
Bandín I & CP Dopazo (2011).
Vet. Res., **42**:67
(open access article available from www.veterinaryresearch.org).

Abstract

The successful replication of a viral agent in a host is a complex process that often leads to a species specificity of the virus and can make interspecies transmission difficult. Despite this difficulty, natural host switch seems to have been frequent among viruses of lower vertebrates, especially fish viruses, since there are several viruses known to be able to infect a wide range of species. In the present review we will focus on well documented reports of broad host range, variations in host specificity, and host shift events hypothesized for viruses within the genera *Ranavirus*, *Novirhabdovirus*, *Betanodavirus*, *Isavirus*, and some herpesvirus.

Epizootic of dolphin morbillivirus on the Catalonian Mediterranean coast in 2007
Soto S, R González, et al (2011).
Vet. Rec., 169:102.

Abstract

Between 1990 and 1992, thousands of striped dolphins (*Stenella coeruleoalba*) stranded along the Mediterranean coast due to a newly described virus, the dolphin morbillivirus (DMV). DMV is one of the several morbilliviruses that have killed marine mammals worldwide since 1987. A new DMV epizootic has been recently confirmed from the Mediterranean Spanish and French coasts during 2007 to 2008.

This short communication describes the pathological findings associated with DMV infection and secondary infections, observed during this epizootic on the Mediterranean coast of Catalonia (north-east Spain). This report also provides further evidence of the absence of DMV circulation on the Catalonian Mediterranean coast during the interepizootic period.

Viral Encephalopathy and Retinopathy in groupers (*Epinephelus* spp.) in southern Italy: a threat for wild endangered species?
Vendramin N, P Patarnello, A Toffan, V Panzarin, E Cappellozza, P Tedesco, A Terlizzi, C Terregino & G Cattoli (2013).
BMC Vet. Res., 2013, 9:2
(open access publication available at http://www.biomedcentral.com/content/pdf/1746-6148-9-20.pdf).

Abstract

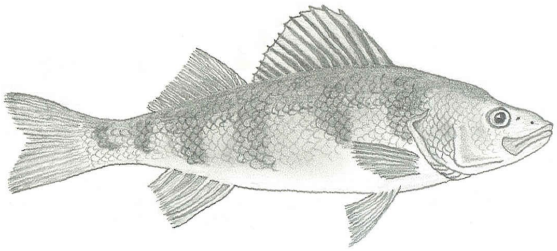
Background: Betanodaviruses are the causative agents of Viral Encephalopathy and Retinopathy (VER). To date, more than 50 species have proved to be susceptible and among them, those found in genus Epinephelus are highly represented. Clinical disease outbreaks are generally characterized by typical nervous signs and significant mortalities mainly associated with aquaculture activities, although some concerns for the impact of this infection in wild fish have been raised. In this study, the authors present the first documented report describing an outbreak of VER in wild species in the Mediterranean basin.

Case presentation: In late summer - early winter 2011 (September-December), significant mortalities affecting wild Dusky grouper (*Epinephelus marginatus*), Golden grouper (*Epinephelus costae*) and European sea bass (*Dicentrarchus labrax*) were reported in the municipality of Santa Maria di Leuca (Northern Ionian Sea, Italy). The affected fish showed an abnormal swimming behavior and swollen abdomens. During this epizootic, five moribund fish showing clear neurological signs were captured and underwent laboratory investigations. Analytical results confirmed the diagnosis of VER in all the specimens. Genetic characterization classified all betanodavirus isolates as belonging to the RGNNV genotype, revealing a close genetic relationship with viral sequences obtained from diseased farmed fish reared in the same area in previous years.

Conclusion: The close relationship of the viral sequences between the isolates collected in wild affected fish and those isolated during clinical disease outbreaks in farmed fish in the same area in previous years suggests a persistent circulation of betanodaviruses and transmission between wild and farmed stocks. Further investigations are necessary to assess the risk of viral transmission between wild and farmed fish populations, particularly in marine protected areas where endangered species are present.

Know Your Fishes

Yellow Perch, *Perca flavescens*



Although perch is a name used commonly for many species, perhaps distantly related, it properly refers to members of the freshwater perch family, Percidae. In North America, this includes the walleye, the sauger, about 200 mostly small darter fish and the yellow perch. Classed also as a sport fish, its white, flaky, very tasty flesh makes the yellow perch a prominent commercial species, particularly in the Great Lakes region.

The yellow perch is primarily a lake fish, but it also inhabits ponds and slow-running rivers and streams in most of the northern United States and throughout Canada. The Great Lakes have the greatest abundance of yellow perch and it is this stock that supplies almost the entire commercial fishery. Canadian landings in 2008 totaled 3,713 tonnes at a value of $9.1 million; while US landings in 2008 totaled 994 tonnes, valued at $4.9 million. (Look for CMP's new 2015 edition for updated landings statistics.)

Yellow perch is caught commercially by gillnets, poundnets and trapnets. Anglers use various types of gear, with both live and artificial bait and lures. Most of the commercial catch is marketed in the United States as fillets, but there is a growing market in Canada, where it is marketed as fresh and frozen whole fish and fillets. Its firm, white flesh and sweet taste make it an excellent pan fish.

Perch are not a fighting fish like trout, but these full-bodied, large-finned panfish are a favorite treat and a relatively easy target for anglers.

See our book *The Commercial Fisheries of the United States and Canada* for more information on life style and habits of this fish.

For additional information please see website:
http://www.CMPpublications.com/na_fisheries

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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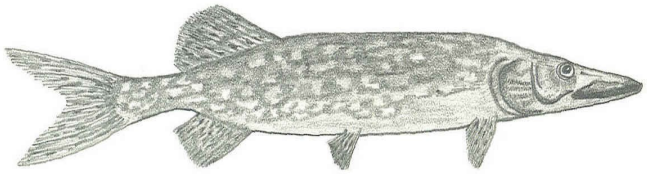
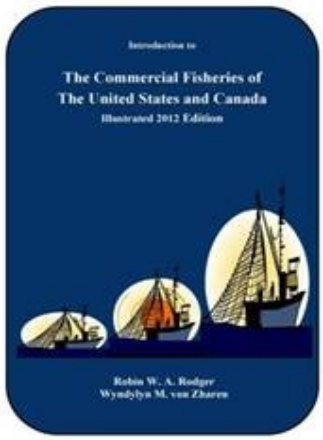


Northern Pike (***Esox lucius)*** is a member of the pike family (Esocidae) and closely related to the muskellunge or "musky" (*Esox masquinongy*) and "pickerels," such as the chain pickerel (*Esox niger*). The northern pike has been deemed the wolf of fresh waters because it is a tough and serious predator. The pike has also gained a reputation as an excellent game fish in waters where it is native. However, where it has been newly introduced (often illegally or accidentally), it is also often considered an invasive species because it can devastate an entire ecosystem. In some such cases Alaskan officials, for example, have designated the pike as a "salmon and trout -eating machine" and encourage year-round fishing expeditions, with no catch limits — spears included.

The northern pike is circumpolar, found in lakes, ponds and quiet streams in the northern hemisphere. In North America, it is found in rivers and lakes from Alaska to Labrador, throughout Canada, New England, much of New York, the northern Ohio Valley, the Great Lakes and southward to Missouri and Nebraska. It is a solitary fish, but migratory behavior is not clearly established. They usually prefer clear, warm, meandering, heavily vegetated rivers and streams and the weedy bays of lakes. In the spring and fall, they generally live in shallower waters, moving to deeper water at the height of summer. Upper lethal water temperature is around 30°C (86°F). Primarily a freshwater fish, they can tolerate salinity and have been found in brackish waters.

Pike are landed year-round. The largest commercial catches in North America are taken in Manitoba, followed closely by Saskatchewan. Most of the catch is incidental to other fishing operations carried out with gillnets, poundnets and seines. Anglers troll for the pike with spoon hooks and other artificial baits or with live fish bait. Canadian commercial catches often average about 1,400 to 1,950 tonnes per year, with 2008 landings valued at $1.6 million. Pike is not a reported commercial fishery in the US.



A Ray of Hope for World's Most Endangered Turtle: Potentially the last female of her species has been Artificially Inseminated

WCS Press Release - May 25, 2015 –

The Turtle Survival Alliance (TSA), San Diego Zoo Global and WCS's Bronx Zoo announced that working in conjunction with Changsha Zoo, Suzhou Zoo and the China Zoo Association, a female Yangtze giant softshell turtle (*Rafetus swinhoei*)—potentially the last female of her species—has been artificially inseminated. The procedure, which brought together top scientists from China, Australia and the United States, provides a ray of hope in a continuing effort to save the world's most endangered turtle. SEE VIDEO HERE

There are four living Yangtze giant softshell turtles remaining in existence—two in Vietnam (both thought to be males) and two in China at the Suzhou Zoo (a male and female). The male and female—both believed to be greater than 100 years of age—were brought together in 2008 as part of a captive breeding program initiated by TSA and the WCS (Wildlife Conservation Society) China program. The female was transported from the Changsha Zoo to the Suzhou Zoo through the efforts of four partners (Changsha Zoo, Suzhou Zoo, TSA, and WCS).

WCS China Reptile Program Director and coordinator of the *Rafetus swinhoei* breeding program, Dr. Lu Shunqing, mediated the program agreement among the partners and has coordinated the program during the past 8 years.

"It now appears that artificial insemination is the only possible option for the pair of *Rafetus swinhoei* in Suzhou Zoo to reproduce successfully," said Dr.Lu Shunqing. "The fate of the most endangered softshell turtle of the world is now in the balance."

Though the two turtles have before displayed courting behavior, eggs laid by the female have been infertile.

"We had to find out if the last known male in China no longer produces viable sperm due to old age or an inability to inseminate the female," said Dr. Gerald Kuchling, organizer of the artificial insemination effort and Rafetus breeding program leader for the TSA.

To determine the cause of the infertility, Suzhou Zoo, Changsha Zoo, and the China Zoo Association requested TSA assemble a team of scientists to conduct a reproductive evaluation of the male, collect semen, determine if he had viable sperm, and, if viable sperm could be demonstrated, artificially inseminate the female.

"At first we tried semen collection through manual stimulation and the use of a vibrator, but as previously found in another softshell turtle, the only way was through sedation of the male and electro-ejaculation—risky procedures due to his old age," Dr.Kuchling said.

During the process, the male was determined to have damaged sex organs, perhaps due to a fight with another male decades ago. For this reason, the scientists believe the male incapable of inseminating the female, and therefore, fertilizing the eggs.

Dr. Barbara Durrant, Director of Reproductive Physiology at the San Diego Zoo Institute for Conservation Research said, "Normal semen parameters for Rafetus are unknown as this was the first attempt to collect and examine sperm from this species. The semen evaluation revealed that approximately half of the sperm were motile." Based on the results, it was determined the female could be artificially inseminated.

This attempt marks the first time artificial insemination has been tried with any softshell turtle species and based on results of insemination with other turtles, the odds are not good for success. With natural breeding unsuccessful however, the scientists felt it was time to explore this option. Both turtles recovered from the procedure in good condition.

"The attempts to breed this critically endangered species, and overcome obstacles to natural breeding by this global consortium of experts is a great example of international cooperation to save endangered species," said WCS Chief Veterinarian and Bronx-Zoo based Director of Zoological Health Dr. Paul P. Calle, who worked with Chinese veterinarians on the delicate sedation process. "We are grateful to our Chinese partners at the Suzhou Zoo, Changsha Zoo, and the China Zoo Association for inviting us to work with them in our collective attempt to save this species. "

"This was a great exploration to advance the conservation of *Rafetus swinhoei*, however, we cannot yet determine if the exploration was successful or not," said Director Chen Daqing of Suzhou Zoo. The female will lay the eggs in a few weeks and in a couple of weeks after that, the scientists will know if the eggs are fertile.

Listed at the top of the World Conservation Union's Red List, the Yangtze giant softshell turtle is the most critically endangered turtle in the world. Its status in the wild has long been recognized as grim, but extinction risk now is believed higher than ever. Much of its demise has been attributed to over-harvesting and habitat degradation.

Fort Worth Zoo Biologist and TSA President Rick Hudson said, "The conservation world will once again be holding its collective breath until we know if this was successful. The optimism we felt back in 2008 when the pair was mating and laying eggs has slowly faded as reality sank in that this pair would not breed without intervention."

"This autumn, the female Rafetus swinhoei will be moved back to Changsha Zoo. We hope some children move together with her," said Vice Director Yan Xiahui of Changsha Zoo.

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San Diego Zoo Joins Last Ditch Effort To Help Rare Giant Turtle Breed
Ted Ranosa, Tech Times

A team of wildlife experts from the San Diego Zoo have successfully inseminated a female Yangtze giant softshell turtle in China. The procedure is part of an international effort to save the highly endangered species by breeding new turtles.

The 100-year-old female turtle at the Suzhou Zoo is believed to be one of only four Yangtze giant softshell turtles (*Rafetus swinhoei*) left in the world. The zoo also cares for another male turtle, while the two remaining males are kept in a facility in Vietnam.

The artificial insemination effort has brought together scientists from different conservation groups around the world, including the Turtle Survival Alliance (TSA), Wildlife Conservation Society's (WCS) Bronx Zoo, Suzhou Zoo, Changsha Zoo, China Zoo Association and the San Diego Zoo Global.

The program agreement among the international groups was mediated by Dr. Lu Shunqing, the Reptile Program Director from WCS China. Lu has is also the coordinator of the breeding program for the turtles.

Dr. Gerald Kuchling, a member of the TSA and the organizer of the project, explained that they had to determine if the last known male giant softshell turtle in China is still capable of producing viable sperm despite its old age, or if the animal can still even inseminate the female turtle.

The scientists discovered that the reproductive organs of the male turtle have been damaged, possibly from an encounter decades ago. However, reproductive physiology director Dr. Barbara Durrant from the San Diego Zoo Institute for Conservation Research said that half of the semen taken from the male giant softshell turtle can be used to inseminate the female turtle.

With natural breeding efforts having been unsuccessful in the past, the scientists were left to explore the option of artificial insemination in order to impregnate the female.
See Full Story at:
http://www.techtimes.com/articles/55793/20150527/

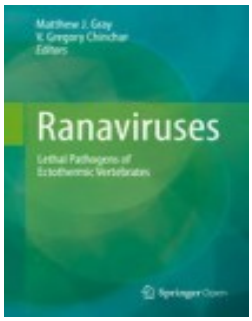
This sea turtle got a new lease on life courtesy of 3D printing technology
Read more: http://bit.ly/1L1NVjj

Team rebuilds turtle's beak with 3D-printed titanium prosthesis

Veterinarians, rescuers and 3D printing experts worked together to save a loggerhead turtle by replacing his fractured jaw with a custom 3D-printed titanium prosthesis. The Dekamer Sea Turtle Research, Rescue and Rehabilitation Center tended to the turtle, named AKUT-3, after he was found floating in the ocean with 60% of his upper and lower jaw sheared off by a boat's propeller. Rescuers plan to release AKUT-3 once he's fully recovered from the surgery. CNET
http://www.cnet.com/news/robo-turtle-gets-a-new-3d-printed-face/

http://www.reptilesmagazine.com/Turtles-Tortoises/Information-News/Loggerhead-Sea-Turtle-Outfitted-with-3D-Printed-Titanium-Jaw/

New book on Ranaviruses!



With the assistance of ARAV and other like-minded organizations, the Global Ranavirus Consortium has now published an open access book on Ranaviruses.
Please follow the link below for access:
http://arav.org/news-events/new-book-on-ranaviruses-open-access-available/

Texas aquarium accidentally kills nearly all fish in its biggest indoor tanks
By RYAN PARKER
LA Times

The animals at the aquarium in Corpus Christi, Texas died when a new medication was introduced into the water in an effort to control a parasite that was resistant to other treatments, spokesman Richard E. Glover Jr. said.

"It appears to be a truly sad fluke," Glover said. "Considerable losses were sustained." The creatures the aquarium was trying to kill were the trematode parasite, Glover said.

Before introducing the chemical into the tanks, staffers tested it on a smaller exhibit and found no adverse reaction, he said. As many as 100 fish were killed in the four affected tanks, the largest of which holds 125,000 gallons, Glover said.

That largest tank held an exhibit called the Islands of Steel, featuring nurse sharks, green moray eels, spadefish, amberjack, tarpon, grouper and a sand tiger shark, according to the aquarium's website.

Glover did not specify what chemical was used to try to kill the parasite, but the aquarium said in a statement that it "is commonly used by many other aquariums in treating similar issues."

"Nothing like this has ever happened before," Glover said.

Staffers worked through the night to save as many animals as possible and try to figure out what went wrong, and water samples have been sent to labs for testing, he said.

For full story, see:

http://www.latimes.com/nation/nationnow/la-na-nn-texas-state-aquarium-20150415-story.html

First Warm Blooded Fish Discovered

Scientific American
By Stephanie Pappas and LiveScience
May 14, 2015

The car-tire-size opah is striking enough thanks to its rotund, silver body. But now, researchers have discovered something surprising about this deep-sea dweller: It's got warm blood.

That makes the opah (*Lampris guttatus*) the first warm-blooded fish every discovered. Most fish are exotherms, meaning they require heat from the environment to stay toasty. The opah, as an endotherm, keeps its own temperature elevated even as it dives to chilly depths of 1,300 feet (396 meters) in temperate and tropical oceans around the world.

Southwest Fisheries Science Center biologist Nick Wegner holds a captured opah, the first-ever warm-blooded fish.

Credit: NOAA Fisheries, Southwest Fisheries Science Center

For full article, see:
http://www.scientificamerican.com/article/first-warm-blooded-fish-discovered/

Vets condemn EU rules which demand organic fish farms must treat any signs of illness using homeopathy

Veterinarians have criticised EU rules on organic farming that demands that fish are treated with homoeopathic remedies. In line with EU regulations, the first line of treatment for organic fish should be 'substances from plants, animals or minerals in a homeopathic dilution.' British and Norwegian vets have called the directives 'scientifically illiterate', saying that the use of homeopathy could lead to 'serious animal health and welfare detriment.'

After this, the 'veterinary treatments' section outlines that farmers may use 'plants and their extracts not having anaesthetic effects.' As well as the directive to use homeopathic treatments, organic fish farmers are only allowed to resort to mainstream medical treatments a maximum of twice per year, or their fish will lose its organic certification.

This has been criticised by the Norwegian Veterinary Association (NVA) as could mean that fish are not getting the correct treatment in time, causing them unnecessary suffering. 'We think it's totally unacceptable from a scientific point of view because there's no scientific basis for using homeopathy,' Ellef Blakstad, the head of the Norwegian Veterinary Association, suggested, 'If you start using homeopathy, you prolong the time when the animals are not getting adequate treatment and that's a threat to animal welfare.'

The British Veterinary Association (BVA) cannot endorse the use of homeopathic remedies, or indeed any products, making therapeutic claims, which have no proven efficacy,' British Veterinary Association President John Blackwell told Mail Online.

'As with any treatment for disease using medicines, BVA believes that veterinary medicinal products must be evidence-based, with any medicinal claims made by a manufacturer supported.'

See the source (http://tinyurl.com/n9k3jdn) for the full story.

The amended EU Commission Regulation (EC 710/2009) that addresses rules for the implementation of the original EC 834/2007 regulations for organic aquaculture animal and seaweed production is accessible at http://tinyurl.com/y8zrxaw.

EU's crazy homeopathy cure for Norway fish

Norwegian vets are up in arms about a "scientifically illiterate" European directive that mandates the use of homeopathic medicines as the first line of treatment for organic farmed fish. "We think it's totally unacceptable from a scientific point of view because there's no scientific basis for using homeopathy," Ellef Blakstad, scientific director of the Norwegian Veterinary Association, said after calling on the country's Food Standards Agency to delay implementing the directive.

"If you start using homeopathy, you prolong the time when the animals are not getting adequate treatment and that's a threat to animal welfare." Norway this year began the arduous process of bringing the 2009 European regulation on organic aquaculture into national law. The directive calls on farmers to use "substances from plants, animals or minerals in a homeopathic dilution" as the first line of treatment should farmed fish or shellfish develop health problems.

They are only allowed to resort to mainstream "allopathic" treatments a maximum of two times per year if their product is not to lose its organic certification. Homeopathy is a field of alternative medicine which claims that diseases can be treated and prevented by using extracts of herbs and minerals diluted to such low levels that few if any molecules of the original substance remain, due to the 'memory' of water.

Drawing on extensive scientific research, the Norwegian Scientific Committee for Food Safety, has already ruled that the homeopathic medicine is ineffective in treating animals. The 'placebo effect', which can make homeopathic treatments helpful simply by raising the patient's morale, does not apply to farm animals, and certainly not to fish.

In their official response to a consultation put out by Norway's Food Standards Agency, the Norwegian Veterinary Association last week called on ... .

See the source (http://tinyurl.com/laewroe) for the full story

Source:
AquaVetMed e-News See the AVMA Terms of Use (http://tinyurl.com/29h2rf) for further information.

3rd OIE Global Conference on Aquatic Animal Health 'Riding the wave to the future'

Ho Chi Minh City (Vietnam), 22 January 2015 –

Strengthening aquatic animal health programmes to improve aquaculture productivity and sustainability, and contribute to global food security.

Aquaculture is recognised as the fastest growing food animal producing sector in the world, with nearly 50% of the global supply of aquatic animals for human consumption now derived from aquaculture. Furthermore, international trade in aquatic animals (from fisheries and aquaculture) accounts for 10% of total global agricultural exports.

However, the rapid growth of this sector brings with it new health risks, which are compounded by the increasingly globalised trade in live aquatic animals and their products. Aquatic animal disease outbreaks continue to cause significant losses in aquaculture production throughout the world and are having a major detrimental impact on national economies in some countries and regions.

The 3rd OIE Global Conference on Aquatic Animal Health was held at Ho Chi Minh City (Vietnam) from 20 to 22 January 2015. This Conference is one a series of global conferences that began in 2006 aimed at raising awareness of the importance of aquatic animal health and building a global framework for improving the management, prevention and control of aquatic animal diseases. The Conference brought together over 250 key players in the aquaculture sector from nearly 100 countries, including representatives of national Veterinary Services and Aquatic Animal Health Services, international experts from OIE Reference Centres, representatives of national, regional and international organisations, and representatives of other Competent Authorities.

"In a world where the global demand for protein is constantly rising and is set to double by the year 2050, aquaculture production has an increasingly important role to play in providing a source of high-quality protein and safeguarding global food security. We therefore have a duty to ensure the productivity of this key sector and protect it from new health threats", stated Dr Bernard Vallat, Director General of the OIE.

The OIE's activities in the field of aquatic animal health are relevant to all regions of the world. The OIE provides an overview of aquatic animal diseases worldwide, including health alerts, through its online information system WAHIS. The Organisation also publishes intergovernmental standards designed to ensure effective surveillance, prevention and control of 27 aquatic animal diseases and safe international trade in amphibians, crustaceans, fish, molluscs and their products.

The Conference served as a reminder of the crucial importance of implementing these standards, both to safeguard aquatic animal health and to facilitate trade. To be able to implement them, the Veterinary Services and the Aquatic Animal health Services must have the appropriate capacity. However, with most aquaculture production originating in developing and emerging countries, there is also an on-going need to strengthen the capacity of all Member Countries in this respect. The OIE provides its Member Countries with support, notably through its PVS Pathway for evaluating the performance of Veterinary Services and/or Aquatic Animal Health Services. Implementation of the PVS tool specific to aquatic animals in Member Countries began in 2013.

"The discussions this week have served to achieve a greater awareness of the need for good governance of the Veterinary Services and Aquatic Animal Health Services, including their public and private sector components, and to encourage veterinarians, aquatic animal health professionals and other partners to play their part in ensuring that products derived from aquaculture are produced without posing a health risk to other animals or to humans. Emphasis was also placed on the need for rational use of antimicrobial agents in this sector", explained Dr Bernard Vallat.

The participants put forward some twenty recommendations for improving aquatic animal health worldwide. These recommendations will be presented to the 180 OIE Member Countries at the next General Session, in May 2015.

For more information:
3rd OIE Global Conference on Aquatic Animal Health
Recommendations for Action
Presentations & Abstracts

OIE Aquatic Animal Health Code
OIE Manual of Diagnostic Tests for Aquatic Animals
OIE PVS Tool: Aquatic

Official report of the meeting of the OIE Aquatic Animal Health Standards Commission 2–6 March 2015

This is to inform you that the official report of the meeting of the OIE Aquatic Animal Health Standards Commission (the Aquatic Animals Commission) can be downloaded from the OIE public web site. Please use this official report as the authoritative text since the unofficial report may contain errors subsequently corrected in the official report.

Annexes 3 to 21 present amended chapters or new draft chapters for the OIE *Aquatic Animal Health Code* and the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* that are proposed for adoption at the 83rd General Session in May 2015.

Annexes 22 to 25 present new draft chapters for the *Aquatic Code* and *Manual* that are being circulated for Member Countries' comment.

Comments on this report must reach OIE Headquarters by 21 August 2015 to be considered at the September 2015 meeting of the Aquatic Animals Commission.

Annexes 26 to 28 contain reports of meetings of *ad hoc* groups and the revised work programme of the Aquatic Animals Commission for Member Countries information.

Please send your comments by e-mail to the OIE International Trade Department at the following address: trade.dept@oie.int

Yours sincerely,
Dr Derek Belton
Head
International Trade Department
OIE

To view report, go to:
http://tinyurl.com/p75kuz5.
The suggestions for changes or new chapters in the current OIE Aquatic Code (http://tinyurl.com/jw86l9f) & Manual (http://tinyurl.com/my3rvj7)

Industry proactive following ISA diagnosis April 14, 2015

Without waiting for government instruction, a salmon farming company in New Brunswick has voluntarily removed fish from a farm found in a preliminary test to be positive for ISA. Experience has shown that when the Infectious Salmon Anemia (ISA) virus is found on a fish farm, chances are that it might have infected fish in less than all of the cages on that farm. So when one fish was found to be positive for the virus on a farm in New Brunswick last month, the owner quickly removed all the fish from the cage in question.

Despite this proactive decision, this was not enough action for the environmental community, which demanded that the findings should have been made public at once. An article by the Canadian Press last week provided some details about the farm findings, and the current quarantine of the site and a conservation group is criticizing federal and provincial agencies for not publicizing a preliminary test showing the presence of a potentially deadly salmon virus at a New Brunswick aquaculture operation.

The Atlantic Salmon Federation says it heard on Monday that a strain of infectious salmon anemia was reported by an aquaculture company located along the Bay of Fundy. The virus can be fatal to fish but doesn't cause harm to human health. Jonathan Carr, the federation's director of research, says he went to the Canadian Food Inspection Agency (CFIA) website but didn't find a report of the incident. "Without the public knowing what's going on, a lot of rumours and wildfires can happen," he said in an interview.

A spokeswoman for the New Brunswick government said in an email there was a suspected case of virulent infectious salmon anemia detected last month. "The province and the CFIA are aware and are working collaboratively on this," Anne Bull said. "We are in regular contact with the operator, who is co-operating fully on the matter. Increased surveillance and sampling efforts have been put in place by New Brunswick's chief aquaculture veterinarian."

See the source (http://tinyurl.com/l45rzq9) for the full story.

MEETINGS OF INTEREST TO AQUATIC VETERINARIANS

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

CE on the Sea 2016
March 17-21, 2016

The Bright (and Sunny) Idea

VetTechLife, with some help from VetMedTeam, is hosting a CE event that will "float your boat. VetTechLife and VetMedTeam, giants in veterinary continuing education, have joined together to provide a continuing education event that blows others out of the water. Mark March 17-21, 2016 on your calendar for this awesome event!

Join others in the veterinary profession for a CE event that caters to the entire veterinary team. And catering truly mean "catering". Welcome aboard Royal Caribbean's *Independence of the Seas* for tailored continuing education, small class sizes and one-on-one exposure to speakers that want you to get the most out of this event.

This event offers gourmet food, balcony staterooms and many little extras that will make this a truly unforgettable experience.

For info on dates, room and registration rates, as well as ship amenities and CE info, visit Facebook: *VetTechLife Veterinary CE on the Sea 2016* .

2015 Building Exotics Excellence: One City, One Conference

Exotics Convention
Hosted by AAV, AEMV and ARAV
August 29 - September 2, 2015
San Antonio, Texas
Marriott Rivercenter

Coming Soon!
The Exhibitor and Sponsor Prospectus will be available soon. Make plans to showcase your company as an exhibitor or sponsor of ExoticsCon. Details will be emailed and available on the website. Please contact meetings@exoticscon.org if you would like a prospectus.

Conference Features:

- Five Tracks
- Pre-conference Workshops (Saturday, Aug 29)
- Labs (Sunday, August 30)
- Zoo Outing and Reception (Tuesday, Sept 1)
- Booth and Tabletop Exhibition
- Networking Opportunities

See: **VISIT EXOTICSCON.ORG**

Association of Exotic Mammal Veterinarians

ARAV

Association of Avian Veterinarians
Advancing & Promoting Avian Medicine and Stewardship

2015 AVMA Convention
Aquatic Veterinary Program
July 10-14, 2015
Boston, Massachusetts

Consider participating in 3 days of exciting Aquatic Veterinary Continuing Education & Professional Development and a Finfish Clinical Exam & Diagnostic Sampling Wetlab (see linked schedule).

Convention Program
Click http://tinyurl.com/msbxm5m to see the full Convention Program
Click http://tinyurl.com/n3cz7wf to sign up for convention news

Registration
Click http://tinyurl.com/mf7e893 to reserve your hotel before you register & save $25!
Click http://tinyurl.com/k6ocums for registration categories & fees (rates increase after June 31!)

Hotels, Social Events and Services
Click http://tinyurl.com/lfqzlre to see a map of the available hotels
Click http://tinyurl.com/o2rmpzo for events & entertainment
Click http://tinyurl.com/knu54j9 here for a Boston city guide

Important: Register early! Positions in the **Finfish Clinical Exam & Diagnostic Sampling Wet Lab** are limited and will be filled on a first-come, first-served basis.

See www.avmaconvention.org for more information, and on how to obtain registration discounts.

Saturday – July 11, 2015
7:00 AM-Jena Questen: Adventures in Aquatic Animal Industry
8:00 AM-Adolf Maas: Fish Physiology and Environmental Interactions for the General Practitioner
10:00 AM-Jena Questen: Logistics of Pet Fish Examinations in Private Practice
11:00 AM- Brian Palmeiro: Skin to Fins: Dermatologic Disease in Pet Fish
2:00 PM-Jena Questen: Business and Marketing 101 for the Well Run, Profitable, and Enjoyable Private Aquatic Animal Practice
3:00 PM-Brian Palmeiro: Staying Afloat: The Business End of Pet Fish Medicine
4:00 PM-Jessie Sanders: Tipping the Scales in Your Favor: How to Successfully Start an Aquatic Practice
5:00 PM-Adolf Maas: How-to build an Ornamental Aquatics Practice, Whether from Scratch or Adding on

Sunday – July 12, 2015
7:00 AM-Jennifer Dill: Diagnostics for the Practitioner: The Importance of Proper Tissue Collection
8:00 AM-Stephen Smith: Fish Histopathology for the Private Practitioner
10:00 AM-Shane Boylan: Radiography in Fish Medicine
11:00 AM-Julie Cavin: Surgery /Anesthesia /Analgesia in Pet Fish Practice
1:00 PM-Ra'anan Ariav: Fish Health Management of Recirculated Culture Systems
3:00 PM-Esteban Soto: Prophylaxis in Aquaculture
4:00 PM-Thomas Waltzek: Viruses in Farmed Fish
5:00 PM-Ra'anan Ariav: Management and Control of KHV (Koi Herpes Virus) in Koi (*Cyprinus carpio*) farms.

Monday – July 13, 2015
7:00 AM-Martha Keller: Animal Welfare in Aquaculture
8:00 AM-Ed Latson: Biological Significance of the Oxidants Chlorine, Bromine, and Ozone and Their By-products of Disinfection. Implications for life support Systems for Animals that Live in or Spend a Lot of Time in Water
10:00 AM-Sherri Kasper: Creating a Biosecurity Protocol
11:00 AM-Stephen Smith: Aquatic Zoonoses
1:00 PM – 5:00 PM-Charles Innis, Julie Cavin, Kathy Tuxbury: Finfish Clinical Exam & Diagnostic Sampling Wet Lab

Conservation Medicine and Diseases of Amphibians and Reptiles Short Course

5 - 11 July, 2015,
Portal, Arizona, USA

The Southwestern Research Station (SWRS) is offering a 1 week unique course to introduce students in Veterinary Medicine, Wildlife Science, Conservation Ecology, and Biological Science to a variety of topics relevant to field and laboratory health issues of amphibians and reptiles. The course will include both formal lectures by experts in the field, along with hands on laboratory and field procedures.

Concepts of infectious diseases and major pathogens affecting both captive and free-ranging populations of amphibians and reptiles will be reviewed with emphasis on those affecting conservation of these animals in the wild. Because biological specimens such as blood samples are commonly collected in the field, the course will cover how to collect, handle and process such samples. Veterinary surgeons and other veterinarians having extensive experience with surgical methods (such as implantation of radio-transmitters) will present an overview of applicable procedures.

Participants will have an opportunity to learn amphibian and reptile anatomy through several anatomy laboratories in which groups of students will be guided through the dissection of preserved specimens. At the same time, participants will learn how to perform a necropsy and collect specimens for diagnosing disease problems when trying to determine illness and death in their research animals.

The course is designed for undergraduates and graduate students in Conservation Ecology, Wildlife, Biological Sciences, and Veterinary Medicine who expect to study, breed, and manage populations of amphibians and/or reptiles in the field and in captivity. What does conservation medicine means, and how can it functionally can be used to manage populations of amphibians and reptiles, will be explored. Concepts of infectious diseases, anesthesia, the use of pain medications, sampling techniques, surgical techniques, and handling of venomous species will be covered. The course will include lectures and labs.

There will be opportunities to go out locally in the field to observe native herps. Blood may be collected from some of these animals but no private collecting will be allowed.

Tuition (includes course fees and room and board at the SWRS) is $850 – to be paid by participants on being informed of their acceptance. For more information, and to apply on-line go to http://tinyurl.com/pooz9zo. For logistics about the course contact Elliot Jacobson (jacobsone@ufl.edu), or for SWRS information contact the Group Coordinator (swrs@amnh.org or +1-520-558-2396).

The NOVA Intensive MSc Course: Nordic Zoo, Wildlife and Conservation Medicine

3-14 August 2015
Aarhus, Denmark

The NOVA intensive MSc course on Nordic Zoo, Wildlife and Conservation Medicine is a collaboration between Nordic veterinary education establishments. It aims to introducing participants to veterinary and other health science professional skills and knowledge required to meet challenges of the many infectious diseases that are transmitted between wildlife, domestic animals and humans.

The course comprises 4-5 weeks of full time study divided into 2 modules:

The preparatory e-learning module is spread over June-July (available from the Copenhagen University e-Learning Platform). This involves an introduction and subsequent grouping of students in 6 “ecosystem groups”: High arctic, Arctic, Boreal, Forest, Coastal and Marine. This is followed by the main e-learning content of 4 sessions on Conservation Medicine, infectious disease ecology, wildlife pathology and anaesthesia / immobilisation, respectively. Students work both individually and in their eco-group with scientific literature, online discussions and tests, written group assignments and production of YouTube-videos presenting their respective ecosystem and the related conservation medicine challenges.

The on-site module runs in the beginning of August at a university campus or suitable field station of the hosting country. It runs over 11 days (incl. arrival and departure). The following topics will be addressed through lectures, practical exercises, field assignments and excursions:

Presentation of student produced YouTube videos and discussion of the learning outcomes from the online course module

Introduction to conservation medicine, including definition of wildlife, animal welfare, wildlife diseases, threats to wildlife etc.

Ecosystem health, including threatened species, interfaces between wildlife, human and environmental health, climate changes, environmental toxicology and antibiotic resistance;

Zoonosis, infectious diseases and disease surveillance in wildlife;

Wildlife handling, capturing and immobilization;

Wildlife pathology.

The conclusion of course includes students' presentations of their learning outcomes and assessment.

For more information go to http://tinyurl.com/lm43l52 or contact the NOVA University Network Secretariat: Ingrid Aksnes Hjetland, Norwegian University of Life Sciences, PO Box 5003, NO-1432 Aas, Norway; secretariat@nova-university.org

European Association of Fish Pathologists (EAFP)

7 to 11 September 2015
Las Palmas de Gran Canaria

The 17th International Conference on Diseases of Fish and Shellfish will be held in Alfredo Krauss Auditorium in Las Palmas de Gran Canaria. Scientific and technical sessions consisting of poster presentations, invited talks, keynotes, oral presentations, workshops and an EAFP General Assembly will take place during the Conference.

The Local Organizer, Institute for Animal Health and Food Safety at the University of Las Palmas de Gran Canaria, was established by the Government of the Canary Islands in 2002, for the purpose "to serve as a useful tool to society and become a leader in animal health and food safety," not only in the Canary Islands, but also in the rest of our country and the world. Our strategic, geographical and cultural situation, and the dissemination of disease, onset of new health problems in the world, large areas of poverty and mass migration from these areas, allow us to open comprehensive lines of collaboration with countries in Africa and Central and South America, allowing cultural and health development in those same areas. In addition, the geographical situation has made us look at the sea as a source of food and aquaculture is an activity boom in our environment.

For more information, see the Conference website: http://www.eafp2015.es/welcome.html

In order to answer in more details your questions, please feel free to contact us on below addresses:

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Telf. +34 954 22 40 95

Workshop on diagnostic test validation

September 6, 2015
Las Palmas, Canary Islands

This workshop will be limited to 25 participants and will be held in conjunction with the 2015 EAFP Conference on Fish & Shellfish Diseases (September 7-11, http://www.eafp2015.es/welcome.html).

The workshop is focused on the best strategies for use of experimental and/or field studies to obtain estimates of diagnostic sensitivity and specificity, and tips for analyzing these data. There will be approximately 4 hours of lecture/discussion and the remaining 3.5 hours will be problem-based with use of Medcalc (and TAGS) software to analyze data assuming a perfect (imperfect) reference standard.

Examples will be based on OIE-listed diseases of finfish, mollusks and crustaceans and participants are encouraged to bring their own data or provide relevant examples for discussion.

The fee for the workshop will depend on room charges and costs for lunch, and number of attendees and has not been finally determined at the time of this posting. Estimated costs for the day are expected to be no more than 50 Euros for students and 75 Euros for professionals.

If you are interested in attending, please e-mail the lead instructor, Ian Gardner, Canada Excellence Research Chair (Aquatic Epidemiology), Atlantic Veterinary College, Prince Edward Island; E-mail: iagardner@upei.ca), as soon as possible.

4th International Conference on Members of the Genus *Flavobacterium*

October 27-29, 2015
Auburn, Alabama, USA

The Flavobacterium 2015 Organizing Committee welcomes your abstracts for oral papers and scientific posters. The submission period is ***March 20th-April 30th***. Instructions for abstract submission can be found at www.flavobacterium.com. Information on lodging and travel to Auburn is also available on the website. We plan on opening registration in the upcoming weeks. If you have any questions about the meeting please, contact the organizing committee at flavobacterium2015@gmail.com.

Annual AFS-Fish Health Section Annual Meeting

Ithaca, New York, USA (July 13-15, 2015)

The first announcement for the AFS-Fish Health Section Annual Meeting is attached (AFS-FHS_2015_1st ANNC.pdf). Make it a point to join us in Ithaca, NY this summer from July 13 to 15th! We aim to educate, entertain, and please. Check out the Facebook page: www.facebook.com/afs.fhs.2015.meeting. Registration is now open! To see the complete announcement go to http://tinyurl.com/ovozhv5 that includes: a Registration Form, Lodging Information, Abstract Submission Instructions and a Tentative Agenda.

2015 Salmon Disease Workshop

Corvallis, Oregon, USA (July, 20-31, 2015)

Registration now open at https://conferences.bus.oregonstate.edu/Conference/salmon-disease/registration. This workshop, designed for professionals working in the fish health field, will emphasize recent advances and developments in our understanding of salmonid diseases. We have a number of great lectures and hands on labs scheduled and the workshop is limited to 20 participants on a first come, first served basis. For more information on the course go to: http://micro6.science.oregonstate.edu/barthol_lab_SDW. For other information about please contact Dr. Jerri Bartholomew at +1 541-737-1856 or bartholj@science.oregonstate.edu.

Health and Colony Management of Laboratory Fish

Mount Desert Island Biological Laboratory,
Salisbury Cove, Maine, USA (August 16-21, 2015)

Applications are being accepted for this 1-week educational opportunity for individuals with maintenance, management or research responsibilities in which fish are used as laboratory animals. Application deadline is June 12, 2015. Topics to be covered include general system design and water quality management, anatomy and histology of fish, general fish diseases and disease management strategies. Infectious and non-infectious diseases common to all fish as well as specific diseases of importance to laboratory-maintained zebrafish will be discussed. The course will consist of lecture, laboratory exercises and discussions. During the course there will be an opportunity for students to discuss unusual and/or unsolved diagnostic case experiences from their home laboratories as problem-solving exercises. The course should be particularly valuable to technical staff, graduate students, postdoctoral fellows, junior faculty and investigators needing skills to monitor the health of a colony of aquatic organisms. The course also provides a unique educational opportunity for Residents in Laboratory Animal Medicine Programs. For more information on the course, please see the course web site at: http://mdibl.org/course/hcmlf-2015.

World Veterinary Congress

September 13-17, 2015
Istanbul, Turkey

Aquatic Veterinary Medicine Sessions:

A. David Scarfe	Implementing Effective Veterinary Biosecurity Programs in Aquaculture that Meet International Standards & National Regulations
Christopher I. Walster	Making it Easy to Quantify and Display Disease Risks for Biosecurity Plan Clients in Data Poor Environments
Seyed Mohammad Ebrahim Jalil Zorriehzahra	Viral Nervous Necrosis (VNN) as a new Emerging Disease in the Aquatic ecosystem of the Caspian Sea
Seyed Mohammad Ebrahim Jalil Zorriehzahra	Isolation and Identification of *Yersinia ruckeri* in Rainbow trout (*Oncorhynchus mykiss*) and Study on relation of environmental factors and health management with occurrence of Enteric Redmouth Disease in West Azerbaijan province, Iran
A. David Scarfe	Aquatic Veterinary Educational Initiatives to Ensure a Well-Trained Workforce to Serve Client & Other Stakeholder Needs
Donald W Stremme	AQUAVET® has been teaching aquatic animal medicine since 1977
Nicholas Saint-Erne	Advanced Fish Diagnostic Techniques
Julius M Tepper	Koi Ulcer Disease – Lesion Assessment and Treatment Strategies
Nicholas Saint-Erne	Anesthesiology In Pet Fish
Julius M Tepper	The Use of a Waterfall Bypass to Mitigate Water Temperature Fluctuation in Outdoor Koi Ponds
Sadar Aslam	A Comparative study on growth performance of Chinese carps by using soybean meal and duckweed as dietary protein source
Mustafa Yipel	The Important Terms Of Marine Pollution
Speaker Q&A	

See the full WVC scientific program online: http://www.wvcistanbul2015.com/?page=scientific_program&lang=en.

World Congress of Aquaculture and Fisheries
November 6-8, 2015
Qingdao, China

The main theme of WCAF 2015 is the Green Aquaculture-Innovation & Sustainability. The WCAF 2015 will bring together scientific leaders from all over the world, as well as business executives and scientists to the field of Aquaculture and Fisheries.

Aquaculture and Fisheries is a multidisciplinary science, we expected to get together with tentative topics for plenary lectures, focus on the fields of Fish Biology; Aquatic Animal Health and Diseases; Genetics and Breeding; Nutrition & Feeding; Aquatic Animal Farming; Aquaculture Production; Biotechnology and Aquatic Environment Management etc.

These presentations will identify or offer solutions to problems, utilize case studies, identify knowledge gaps or collaboration opportunities, and discuss broader applications and implications of material presented.

Qingdao, the biggest city of Shandong Province, is located in the east part of China. Qingdao is also known for its beautiful coastal scenes and fascinating scenery. Lastly we hope that you could show your enthusiasm and make contributions to this event and enjoy your stay in Qingdao.

Sincerely Yours,

Dr. Xiaodan Mei, Ph.D.
Executive Chair of WCAF-2015
President
BIT Congress Inc.

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China Fisheries Association

China Algae Industry Association

China Recreational Angling Association

China Shipowners' Association

INTERNSHIPS, EXTERNSHIPS & RESIDENCIES

SeaWorld (3-4 weeks)

SeaWorld offers externships at each of its 3 locations. There is one common application where you rank each park. Externs get to work with the wild birds that are brought for rehabilitation, even surgery! You are required to give a small presentation to the veterinary staff on the last week of your rotation. Housing is not provided, but there are lots of hotels in the area, including an extended stay hotel with a small kitchenette for around $50/night.

The Marine Mammal Center (3-4 weeks)

Located in Sausalito, CA, the Marine Mammal Center is in the front-running for marine mammal rehabilitation and research. It is very seasonal, with more animals in the spring and summer. You will work with the veterinary staff 3-4 days per week, and then on crew, doing basic husbandry and feeding once or twice a week. Housing is provided with the veterinary intern and any other externs at one of the old fort houses nearby. It is highly recommended that you get a car for driving around. It is a beautiful area with lots of beach coast and hiking.

Mystic Aquarium

Mystic Aquarium in Mystic, CT, right near the coastal Rhode Island border, houses a large collection of marine mammals, fish and invertebrates. You work primarily with the veterinary intern, shadowing and assisting on procedures. You will also get very proficient in taking and processing analog radiographs. A presentation is required during this externship. No housing is provided, but you may want to ask if they know of anyone working at the aquarium who can provided you with a room for the time you are there. This is another rotation where you'll want a car to check out all the beaches nearby.

Georgia Aquarium

Atlanta, Georgia

Georgia Aquarium is one of the newest aquariums in the US. It has a new procedure suite and one of the most outstanding tanks in the world. Housing is not provided. You may not need a car since the aquarium is located in downtown Atlanta, GA.

Navy Marine Mammal Program (4 weeks)

The US Navy trains marine mammals to perform tasks underwater that cannot be performed by humans. This is a high priority for those interested in marine mammal medicine. This program is based in San Diego, CA and is highly competitive.

Vancouver Aquarium (2-4 weeks)

Located in Stanley Park of Vancouver, Canada, Vancouver Aquarium takes externs to work with their collection of mammals, birds, amphibians, reptiles and fish. A literature review project is required. Housing is not provided but they provide a guide on their website. Make sure your passport is up to date!

Georgia Sea Turtle Center (2-6 weeks)

The Georgia Sea Turtle Center is located on Jekyll Island along the southern coast of Georgia. They rehabilitate both sea turtles and native land turtles at their center. If turtles are your interest, this is one of the best facilities to participate in the latest research and rehabilitation techniques. A research project is required for non-4th year students that is financed by funding through your school. Housing available based on seasonality. A car is recommended.

National Aquarium (6-8 weeks)

Baltimore, MD

National Aquarium is located in Baltimore, MD and houses a large collection of fish, mammals, amphibians/reptiles and birds. This rotation gives hands-on experience with fish, birds, reptiles and amphibians. There is some work with mammals and other critters, but it is largely observational. Applications are accepted year round. A small presentation is required. No housing is available but there are lots of hotels in the area.

New England Aquarium (6-8 weeks)

Boston, MA

Located in Boston, MA, the New England Aquarium hosts a large collection of fish , birds, marine mammals and turtles. Their chief veterinarian, Dr. Charles Innis, is one of the most knowledgeable about cold stun in turtles and has made a significant contribution to researching their rehabilitation. Externs are required to prepare a case report and research paper with presentations for both. No housing is available, but there are lots of options nearby.

AQUATIC JOB OPPORTUNITIES

Shedd Aquarium Staff Veterinarian
Position Available, Chicago, Illinois, USA

This is a full-time position in which the Staff Veterinarian contributes to and implements a comprehensive medical program, manages clinical medical cases, supports a medical records system, and provides reports on the health of the animal collection. S/he manages communication and management of resources. This position represents the department on aquarium teams and professional associations to assure the high quality of animal care at Shedd Aquarium.

Responsibilities and Duties:

Demonstrate commitment to Shedd's vision, mission and values.

Contribute to and implement a comprehensive preventative medical program for the care of the aquarium's animal collection.

Coordinate the management of clinical medical cases including diagnoses, treatments and post-mortem examinations.

Support the development of an accessible and organized medical records system.

Provide timely reports reflecting the health status of collection animals to curators and other appropriate staff.

Manage activities to assure good communication and responsible management of resources while providing a high level of service which includes strategic planning and financial management.

Manage the Aquarium's role in the Illinois Zoo and Aquatic Animal Residency (IZAAR) Program.

Represent the department on aquarium teams, and in professional associations.

Perform other duties as assigned.

Required/Preferred Qualifications:

Doctor of Veterinary Medicine with licensure in the state of Illinois.

Minimum of five years' experience in aquatic animal medicine, and two years' experience in the supervision of staff and development of veterinary medical programs required.

DEA licensure and USDA accreditation required.

Post-doctoral training in an internship or residency program focused on zoological medicine preferred.

ACZM Board Certification preferred.

To Apply - go to http://tinyurl.com/6plwwpv

For more information contact:

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Vice President, Animal Health
John G. Shedd Aquarium
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Chicago, IL 60605
Office: +1 (312) 692-2746
bvanbonn@sheddaquarium.org
www.sheddaquarium.org

Aquatic Veterinary Position - Clearwater Marine Aquarium (Clearwater, Florida, USA)

The Clearwater Marine Aquarium is seeking a full-time veterinarian to establish and implement a comprehensive medical program, manage clinical medical cases, support a medical records system, and provide reports on the health of the entire animal collection. This position represents the department on the aquarium teams and professional associations to assure the high quality of animal care at Clearwater Marine Aquarium.

PRIMARY RESPONSIBILITY will be to establish and implement a comprehensive medical program, manage clinical medical cases, support a medical records system, and provide reports on the health of the entire animal collection including by not limited to Cetaceans, Sea Turtles, River Otters and other aquatic marine animals. This position represents the department on the aquarium teams and professional associations to assure the high quality of animal care at Clearwater Marine Aquarium.

ESSENTIAL JOB FUNCTIONS, in order of priority, include:

Strong interpersonal and professional skills to establish and maintain collaborative working relationships with staff, government agencies and partnership organizations.

Support and demonstrate commitment to Clearwater Marine Aquarium's mission and values.

Establish, implement, and maintain a comprehensive preventative medical program for the care and wellbeing of the animal collection.

Perform diagnostic, clinical, and therapeutic veterinary procedures for the Aquarium's marine animal and fish collection.

Maintain and update medical records.

EDUCATION/EXPERIENCE include:

Doctor of Veterinary Medicine with licensure in the state of Florida.

Minimum of eight years' experience in aquatic animal medicine to include Cetaceans, Sea Turtles, River Otters and fish collections.

Minimum of five years' experience in the supervision of staff and development of veterinary medical programs required.

Licensed by the DEA and accredited by the USDA required.

To apply send a cover letter and resume to Dawn De Santis, Vice President of Human Resources, ddesantis@cmaquarium.org.

For more about Clearwater Marine Aquarium, go to http://cmaquarium.org/.

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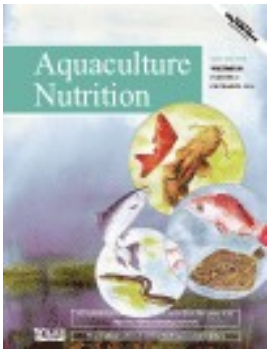

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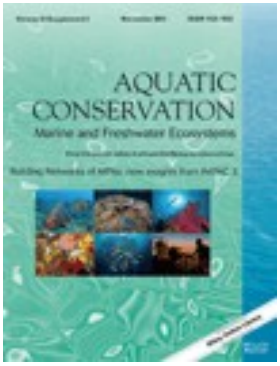

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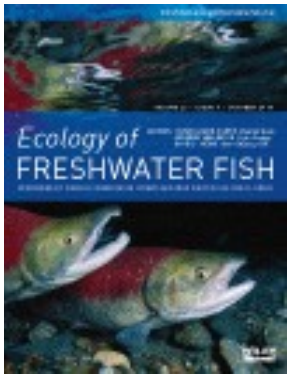

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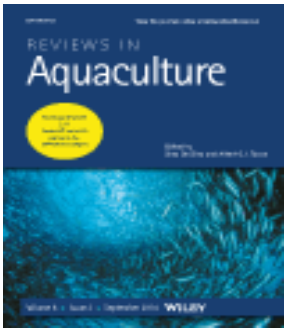

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