

# The



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**Kardakoy Fish Market, on the Asian side of Istanbul, Turkey.**  
Photo by Nick Saint-Erne  
See article on pages 12-15.

Volume 9, Number 4  
Fourth Quarter, 2015



## WHO ARE WE

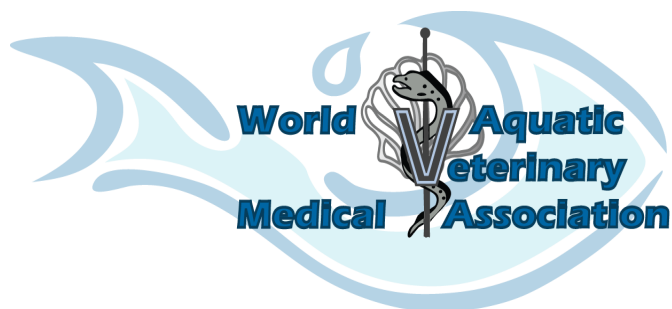
**The mission** of the World Aquatic Veterinary Medical Association is to serve the discipline of aquatic veterinary medicine in enhancing aquatic animal health and welfare, public health, and seafood safety, in support of the veterinary profession, aquatic animal owners and industries, and other stakeholders.

**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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Devon Dublin (Japan)

Richmond Loh (Australia)

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## Past Presidents

Dr Peter L. Merrill (USA)	2007
Dr Ron Roberts (UK)	2008
Dr Hugh Mitchell (USA)	2009
Dr Fotini Athanassopoulou (Greece)	2010
Dr Julius Tepper (USA)	2011
Dr Dusan Palic (USA/Germany)	2012
Dr Mohamed Faisal (USA)	2013
Dr Richmond Loh (Australia)	2014

## Past Secretaries and Treasurers

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

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Editor's Note

It is the end of the year and, as it will be pointed out in other reports in this issue of *The Aquatic Veterinarian*, it was another stellar year for WAVMA! I am not going into the details of all the great events of the past year, but I want to be sure to let you know who made those things happen. So this will be like Santa's naughty and nice list, but will be Nick Saint's Nice List.

A special thanks goes to all of the Executive Board Members, who work to not only keep the organization running, based on the diligent work of the previous board members since 2007, but also come up with fabulous new ideas for improving WAVMA. These dedicated WAVMA members from around the world are Chris Walster (UK), Nick Saint-Erne (USA), Richmond Loh (Australia), Devon Dublin (Japan), Sharon Tiberio (USA), Chad Harris (USA), Laura Urdes (Romania), Lydia Brown (UK), Julius Tepper (USA), and David Scarfe (USA).

Another dedicated group of WAVMA members are all of the Committee Chairs and committee members. Things like the website, listserv, e-Newsletter, annual meetings, webinars, mentorships, Fellows programs, CertAqVet Program and other CEPD opportunities are provided through the tireless work of these folks: Lydia Brown, Stephen Reichley, Andrei Bordeianu, Olanike Adeyemo, Justin Krol, Brian Palmeiro, Madelyn Pitts, Mike Corcoran, Adolf Maas, Tim Miller-Morgan, Dušan Palić, Jena Questen, along with the Executive Board members.

What? You didn't see your name listed above? Then maybe you are on the Naughty List. Or, maybe you just didn't know that you can add your name to the list of active members of WAVMA who keep this great organization growing and becoming even better! See the list of Committees on page 9 and contact one of the Committee Chairs by email to let them know you would like to help. Now that would make a great New Year's Resolution.

Merry Christmas!

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



Spending the holidays with Grumpy Cat.

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



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

Cover Photo:

Photo by Nick Saint-Erne



Istanbul, Turkey was the site of the WAVMA Annual General Meeting, in conjunction with the World Veterinary Congress, in September, 2015. While visiting Istanbul, we had the opportunity to tour the city and saw fresh fish for sale in the street markets.

For more information, go to the Meetings Report on pages 12-15.

WAVMA is on Facebook!



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

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

Search for WAVMA at [www.facebook.com](http://www.facebook.com).

## President's Report

How fast time flies when you are enjoying yourself, or so the saying goes, and based on how quickly this year has flown by, I must have had an incredible year! Certainly it seems like only yesterday that my year as President began and now I'm close to chairing my last Executive Board meeting and handing over to Nick Saint-Erne. Nick I am sure will be an outstanding President and improve on the success WAVMA already is.

Between the festive season and the closing of my presidential year, clearly there should be time for reflection before moving forward:

The most important reflection is to realise the work put in by the many friends and colleagues who actually do most of the hard work, and that without them WAVMA would not move forward. To all those who have helped WAVMA develop, expand and consolidate I would like to extend my personal thanks for making my time as President so much fun.

The second reflection is on what has been achieved, and, I believe like many association presidents before and after me, that I would have liked to have done more or perhaps more correctly completed more projects. But that in itself is only a reflection on the fact that WAVMA is doing so much to promote and develop the discipline of aquatic veterinary medicine. One year is not enough time to complete all that one would wish to do.

So my third reflection is where WAVMA is. One of the things I find most incredible is the number of international organisations where WAVMA's opinion is sought and heard. WAVMA has a strong relationship with the World Veterinary Association, the World Small Animal Veterinary Association and the International Veterinary Students Association as well as national veterinary organisations and NGOs. WAVMA provides many education resources such as WebCEPD, The Aquatic Veterinarian and the CertAqV program. All of these help in fulfilling WAVMA's mission statement and make WAVMA one of the preeminent aquatic veterinary organisations in the world. I believe that WAVMA is in a strong position to capitalise on the experience contained within its membership, the resources and skills it has harnessed to continue to succeed in its mission.

My final reflection is that however much WAVMA has achieved, it would not have been possible without the support of our members and that this is a two-way process. Through member contributions WAVMA can develop programs and promote the discipline of aquatic veterinary medicine, whilst members can develop their careers through participating in WAVMA.

Moving forward, it is worth mentioning two projects that have come to fruition in the past quarter. After



several false starts over the years, WAVMA now is producing the monthly WAVMA e-news newsletter. This is an excellent way to circulate information to WAVMA members and those who have expressed an interest in what WAVMA does. Each newsletter currently reaches around a thousand people and please feel free to forward it on to colleagues or anyone you think would be interested. It is a great way to promote aquatic veterinary medicine. If you have a story or information you would like to circulate, then please use the link in the newsletter or go to [www.wavma.org/Contact-WAVMA](http://www.wavma.org/Contact-WAVMA). Specific thanks go to Laura Urdes for getting this project completed.

The second recently completed project is the new Externship page on the website that has been developed by the Student Committee: [www.wavma.org/Externships](http://www.wavma.org/Externships). This is an excellent place to check out those opportunities to develop your experience in aquatic veterinary medicine and if you have a vacancy for students you can easily publicise it by using the online form available within the page.

Thinking about students, those of us who have been qualified a few years still remember those who helped us achieve our career goals. Perhaps now is the time to pay some of that goodwill back, and there is no easier way to do it than to support the Pitts Education Awards Program. Simply go to [www.wavma.org/scholarships](http://www.wavma.org/scholarships) and click on the donate now button. There is an opportunity for you to publically thank or remember your special "mentor" during the payment process if you would like. For students, now is the time to consider submitting an application to the awards. Since 2010 the program has helped 58 students to gain experience and develop their interest in aquatic

## EXECUTIVE REPORTS

veterinary medicine. The program is one of several that has helped demonstrate there is a great interest amongst veterinary students to enter the field of aquatic veterinary medicine.

It is that time of year when dues renewal raises its head. Usually WAVMA will have sent out the first reminder by now but due to the extensive changes being made to the website and its administration we are slightly behind. Please log in to your member profile and check out some of the changes to the website and take the opportunity to renew your membership. A few years back I worked out that the annual WAVMA membership was worth up to \$600 a year. Since then we have added several more programs, which means it is even better value now.

The latest beneficial program will occur around February/March when WAVMA will hold a Virtual Veterinary Conference. The theme is sustainability and it is expected that the conference will provide 20 plus hours of CEPD all from the comfort of your own armchair. There will of course be discounts for WAVMA members and a special price for Student Chapters. As well as the presentations there will be the opportunity to ask speakers questions and a forum to debate any issues raised. Keep a look out for announcements in the various news outlets WAVMA has and pass the information on. This has the potential to be a very high profile and public event with some excellent speakers whilst offering great value for money. The virtual conference is being organised in conjunction with Vetstream ([www.vetstream.com](http://www.vetstream.com)) the world's largest online clinical reference source, and Vetacademy ([www.vetacademy.org](http://www.vetacademy.org)) a provider of online veterinary CPD.

Next year looks to be set to be another great year for WAVMA and its members and all that remains for me to do is wish you a wonderful festive period and have a great new year!

**Chris Walster, BVMS MYPH MRCVS CertAqV**  
2015 WAVMA President  
[President@WAVMA.org](mailto:President@WAVMA.org)

*Julius  
Tepper,  
Chris  
Walster,  
Nick  
Saint-Erne,  
and  
David Scarfe  
blending in  
at the AGM  
in Istanbul.*



**WSAVA Round Table Forum at the Southern European Veterinarian Conference (SEVC), Fira de Barcelona, Spain**  
By Laura Urdes

On October 15th, 2015, the World Small Animal Veterinary Association's Executive Board members and representatives of its affiliate organizations - which includes the World Aquatic Veterinary Medical Association - met for an open discussion in Barcelona, Spain, under the auspices of the Southern European Veterinarian Conference. With an open agenda, the dialogue revolved mainly around the WSAVA policy of the membership statute, continuing education, and initiatives related to the practice of veterinary medicine worldwide. WSAVA is currently looking into developing guidelines for topics of actual interest and concern, like pain management and drug use in small animal medicine. There were also discussions about the appropriateness of establishing a WSAVA independent vaccination guideline group in the near future.



*WSAVA Board members - Drs Renee Hoyneck van Papendrecht (2nd left), Colin Burrows (center), Jolle Kirpensteijn (center), Nicola Neumann (right) and the forum members, at Fira de Barcelona, Sept 2015.*

Further talks were devoted to the upcoming 41st and 42nd WSAVA Congresses, due to take place in Colombia (27-30 September 2016) and Denmark (25-28 September 2017), respectively. WAVMA has offered to prepare a number of aquatic sessions for these occasions and, since the initiative was enthusiastically embraced by the meetings organizers present at the forum, it is very likely to reify. Among the proposed topics being considered to be included into the program, which fall under the "One Health" concept, are welfare of aquatic animals, using fish as experimental models and drug use and misuse in fish. Concrete data shall be communicated at a later date, when details become available.

### Secretary's Report

Dear WAVMA members,

We have come to the end of yet another year with the customary blend of ups and downs. As secretary, I am in a position that allows me to record the events and successes of WAVMA, and am usually the first one to see invitations from other organizations that wish to collaborate with us or to present opportunities that we as an organization can take advantage of.

Over the years, WAVMA has seen a number of persons that have diligently stayed the tide. It is because of this I continually appeal to the wider membership to consider getting involved, and I always recognize the contribution of those that volunteer their time and resources to ensure that WAVMA grows from strength to strength. So, true to tradition, I reiterate my call to all WAVMA members to consider getting involved; even a small way can go a long way when considered collectively. In the same breath, I must thank the executive board for all their efforts during the past year and congratulate the new team for 2016, which incidentally is made up mainly of familiar faces. In the recently conducted elections, we have elevated for the second time a woman in the position of Present-Elect, in the name of Dr. Laura Urdes from Romania. She is quite a dynamic persona and I do wish her well. She will become President of WAVMA in 2017.

I wish to highlight a movement in WAVMA that is very promising. The student members are motivated and are making an effort to realize various projects such as a mentorship program, and providing updated online information on matters of interest to their peers such as internships. I personally salute their efforts and the board is supporting them as much as possible. I do hope that by working closely with the board they would be inspired to take up the mantle in the future.

While it is true that WAVMA mainly needs to continue advancing the programs it has, there is certainly lots of room for improvement and expansion. Therefore feedback is always welcome so that it would be known what is working and what is not. There is a notably progressive interest in the WAVMA Certified Aquatic Veterinarian program and it no doubt will continue to be a popular feature of the services we offer. My hope is that those that have successfully been accredited will be among the first to support the mentorship program of the Student's Committee and with the student members increasing considerably on an annual basis.

In the New Year, I envision WAVMA building on its experiences in the execution and facilitation of online *e-Learning* programs and courses to advance

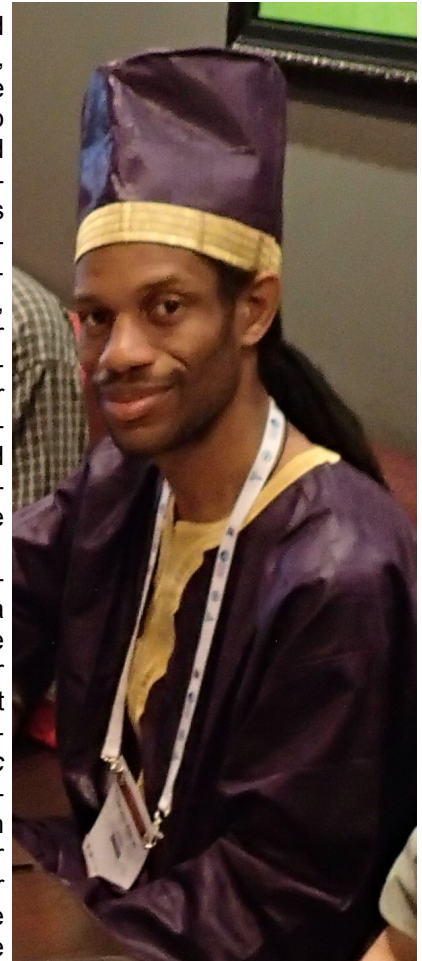
the knowledge and skills of its members, while at the same time continuing to actively pursue and explore other avenues for its members to receive discounted subscriptions to publications, meetings, and other benefits. The ultimate goal is for WAVMA to automatically come to mind when aquatic medicine is on the agenda.

As we move towards the dawn of a new year, please remember my earlier appeals to submit material for publishing in *The Aquatic Veterinarian*, to consider serving as an Officer, Director or Committee Member on the executive board or one of the

committees (Certification, Communications, Meetings, Membership, Students), and to inform us of ways in which we can serve you better.

I wish you and your loved ones a marvelous Christmas season filled with joy and cheer and that 2016 will indeed be prosperous and progressive.

**Devon Dublin, PhD, DMVZ, MSc. CertAqV**  
WAVMA Secretary  
Global Environment Facility - Satoyama Project  
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Shinjuku, Tokyo,  
160-0022, Japan  
[Secretary@wavma.org](mailto:Secretary@wavma.org)



**EXECUTIVE REPORTS**

**Treasurer's Report**

As the year draws to a close WAVMA is in a fiscally strong position. I am happy to report that our 2015 membership exceeded our projections and we are already receiving 2016 new member applications. Our Certified Aquatic Veterinarian Program has been a success, having received more applications than anticipated with 30 veterinarians currently being credentialed.

On the expense side, our IT expenditures were greater than in previous years, as expected, as a result of Board approval for some much needed website improvements and webinar-associated fees. Once all the enhancements are in place, the website and member profile/member transaction pages will be more user friendly, and an online membership directory is in the works. Additionally, a page devoted to aquatic veterinary internship and residency listings is being developed.

WAVMA participated in and sponsored several meetings again this year: World Veterinary Congress, International Veterinary Students' Association, World Small Animal Veterinary Association, International Association for Aquatic Animal Medicine, and Aquaculture America. The associated expenses were more modest than projected. And in alignment with WAVMA's mission and objectives, student financial support continues to exist in the form of annual donation to the Pitts Education Award Program and partial reimbursement of student chapter-organized educational expenses, a benefit of student chapter membership.

WAVMA remains committed to saving money on credit card transaction fees by encouraging members to continue to use PayPal for membership dues and purchases.



**Financial Report as of December 1, 2015**

**Total Income \$ 27,068.75**

Total membership income	=	\$ 23275
Veterinarians:		\$ 10800
Vet Students:		\$ 5675
New Graduates:		\$ 550
Vet Tech/Affiliates		\$ 150
Allied Veterinary Organizations:		\$ 850
CertAqV Application Fees:		\$5250

**Total Expenses: \$ 26484.66**

See below for a list of new WAVMA members in the last quarter of the year, and page 10 for more information about the WAVMA Aquatic Veterinarian Certification. Program

As always, a big thank you to all our members for their support and participation. I wish you a happy and safe holiday season as we head into the New Year!

Best wishes,

**Sharon Tiberio**, DVM, CertAqV  
 WAVMA Treasurer  
[Treasurer@WAVMA.org](mailto:Treasurer@WAVMA.org)

**New Members (July-September, 2015)**

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

**Full Members**

- Alvin Camus
- Antony Karolis
- Kelly O'Sullivan

**New Grads**

- Kendra Baker
- Kerryn Illes

**Vet Student Members**

- Aaron Judson
- Alexandra Diaz
- Alexys Newman
- Amanda Seelman
- Analisa Edell
- Andres Ixlahuac
- Andres LeJuan White
- Anna Pennacchi
- Bryce Miller
- Christine Moore
- David Abolnik
- David Mills
- Elizabeth Aulette-Root
- Emi Daniel



### New Vet Student Members (Continued)

Emily Horton  
Greer Brander-McCaffrey  
Hannah Green  
Hannah Smith  
Heather Srch Thayden  
Jaclyn Levin  
Jacqueline Townsend  
Jennifer Brewer  
Jennifer Nogay  
Juel Shamitko  
Katharine Llop  
Katherine Guiremand  
Katherine Tello  
Katie Gunderson  
Kelly Kearney  
Kimberly Calloway  
Kylie Poel  
Louise Qu  
Lukas Huber  
Lyndsey Helgeson  
Madison Mcgonigal Barnes  
Marie Ihara  
Melissa On  
Molly Hayden  
Natalie Savo  
Nathalie Mauroo  
Neil Cook  
Nicole Sylvestre  
Olivia Fraser  
Robin Sayres  
Rogelia Pena  
Sara Bresse  
Sarah Harmon Hood  
Taylor James

### 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](mailto:Treasurer@WAVMA.org)

#### Communications Committee

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

Chair: Laura Urdes, [laurau\\_2005@yahoo.com](mailto: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](mailto: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](mailto:cypcarpio@aol.com)

#### Membership Committee

This Committee oversees membership issues to optimally serve individual members and the organization. Chair: Lydia Brown, [drydiabrown@gmail.com](mailto:drydiabrown@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](mailto:justkrol21@gmail.com)

*WAVMA is on Facebook!*



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

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

Search for WAVMA at [www.facebook.com](http://www.facebook.com).

## 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 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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Bogan, James	<a href="mailto:thecritterfixer@gmail.com">thecritterfixer@gmail.com</a>
Cecil, Todd	<a href="mailto:waavs@aol.com">waavs@aol.com</a>
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Pasnik, David	<a href="mailto:chesapeakeaquatic@yahoo.com">chesapeakeaquatic@yahoo.com</a>
Questen, Jena	<a href="mailto:drquesten@gmail.com">drquesten@gmail.com</a>
Reed, Aimee	<a href="mailto:reeda@onid.orst.edu">reeda@onid.orst.edu</a>
Reichley, Stephen	<a href="mailto:stephen.reichley@gmail.com">stephen.reichley@gmail.com</a>
Sahatrakul, Komsin	<a href="mailto:komsin.s@rwsentosa.com">komsin.s@rwsentosa.com</a>
Saint-Erne, Nick	<a href="mailto:nsainterne@gmail.com">nsainterne@gmail.com</a>
Sanders, Jessie	<a href="mailto:ncfishvet@gmail.com">ncfishvet@gmail.com</a>
Scarfe, David	<a href="mailto:dscarfe@ameritech.net">dscarfe@ameritech.net</a>
Shelley, John	<a href="mailto:thejohnnyshelley@yahoo.com">thejohnnyshelley@yahoo.com</a>
Soto, Esteban	<a href="mailto:balasotom@gmail.com">balasotom@gmail.com</a>
Tepper, Julius	<a href="mailto:cypcarpio@aol.com">cypcarpio@aol.com</a>
Tiberio, Sharon	<a href="mailto:stiberio@att.net">stiberio@att.net</a>
Urdes, Laura	<a href="mailto:laurau_2005@yahoo.com">laurau_2005@yahoo.com</a>
Van de Sompel, Greta	<a href="mailto:lohan.van.der.cruyssen@telenet.be">lohan.van.der.cruyssen@telenet.be</a>
Walster, Chris	<a href="mailto:chris.walster@onlinevets.co.uk">chris.walster@onlinevets.co.uk</a>
Weber, Scott	<a href="mailto:sharkdoc01@gmail.com">sharkdoc01@gmail.com</a>

## 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](http://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 thirty-one aquatic veterinarians. Please welcome our latest Certified Aquatic Veterinarians:

Dr. Orachun Hayakijkosol (Australia)

There are an additional twenty-two 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](mailto:nsainterne@gmail.com)

### Communications Committee

**WAVMA e-News:** Two issues of the newsletter have been distributed to WAVMA Members in 2015, on October 10<sup>th</sup> and November 16<sup>th</sup>. The next issue shall be published around December 15<sup>th</sup>.

Following the committee members' suggestion, a Survey Monkey poll was set up and is being currently tested in order to be added to the upcoming newsletter, along with other articles and sections. The poll is intended to engage readers and encourage feedback.

Although the primary intent with the e-News newsletter was to use it in order to be able to share the information available on the wavma.org website, as a synopsis with a "read more..." link to the original post on the website, it was obvious that the idea could not be implemented entirely. However, the commonly agreed concept of driving newsletter readers to the WAVMA website *via* related web links is being met through the information and adverts relating to wavma.org website (including webCEPD ads) within the newsletter content.

**Online membership directory:** The Communications and Student committees have initiated a new online directory as part of the membership system upgrade which is being currently performed. Mockups of the webpage changes were evaluated favorably by the committee members, and thus approved to be implemented. Both committees will be asked to review a beta version prior to it going live soon.

**Website revision:** The committee agreed that the Image Gallery web page is outdated and, very probably, less and less people are using it. Replacing the pictures with new images, and perhaps re-structuring the web page, is seen as a compulsory action to be performed before advertising it along with other membership benefits.

As restructuring the Image Gallery web page is seen as a new project requiring additional resources – funding and human resources included, it is put on hold until some of the actual running projects are completed. The committee endeavors to have it started as soon as possible.

**Leaving the Chair position (December 31<sup>st</sup>, 2015):** Since the time for me as a Chair of the Communications committee is coming to an end, I would like to thank the Committee members for the support and encouragement that I have been provided with throughout the years. Working closely on various committee projects with WAVMA colleagues and friends located in different parts of the globe has been an extraordinary experience of tremendous value to me. I am honored to have been placed in the position to coordinate this dedicated and kind-hearted team.

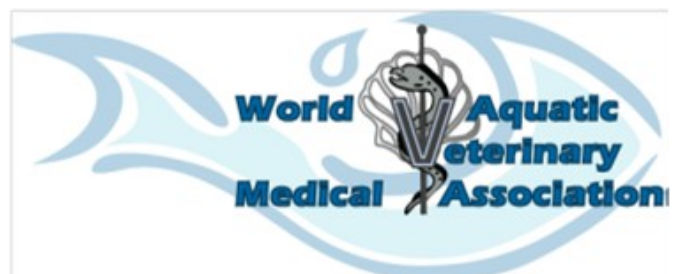


From January 1<sup>st</sup>, 2016, I will carry on serving as a member of this committee. We would like to invite any interested member to join the Communications Committee.

Thank you team!

**Laura-Daniela Urdes** DVM PgDip PhD CertAqV  
Communications Committee Chair

[laurau\\_2005@yahoo.com](mailto:laurau_2005@yahoo.com)



**Meetings Committee**

Our arrival in Istanbul, Turkey for the World Veterinary Congress was indeed exciting. Due to thunderstorms earlier in the day, most flights were delayed. When they began arriving late in the day, immigration checks were mobbed with pushing and line-cutting. Once we were met by our transport team, we were ushered into a very modern minivan for a high speed, multilane changing Grand Prix style ride into the city. Well, at least part of the way. The remainder of the ride was inching along in traffic until we reached our hotel. We slept well that night.



*The Hagia Sophia church, built in 537 AD*

The next day we all met up at the Istanbul Hilton. It was a real pleasure to finally meet our Iranian colleague and WAVMA member, Babak Shoabi Omrani, who came with his wife Sanaz. It was interesting to learn about practice in Iran and his hopes to one day see us hold an aquatic conference there.



*L to R: David Scarfe, Chris Walster, Babak Omrani, Julius Tepper, Nick Saint-Erne in lobby of Istanbul Hilton Hotel*



*The Grand Bazaar, one of the oldest markets in the world, was constructed in 1455 AD*



*Fresh squeezed pomegranate juice at a fruit stand on the street*

We also had the great pleasure to revisit old acquaintances, Turkish vets and WAVMA members Erdem Danyer and Isil Aytemiz. We first met them in Athens, Greece at our conference there in July, 2010. We were now on their home turf and they took the opportunity to show us some of the highlights of our trip to Turkey.

*Bosphorus ferry ride from Europe to Asia!*



This included a ferry ride over to the Asian side of Istanbul, where Isil grew up, to sample some local treats at a family-owned sweet shop and local seafood delicacies at a street vendors shop.



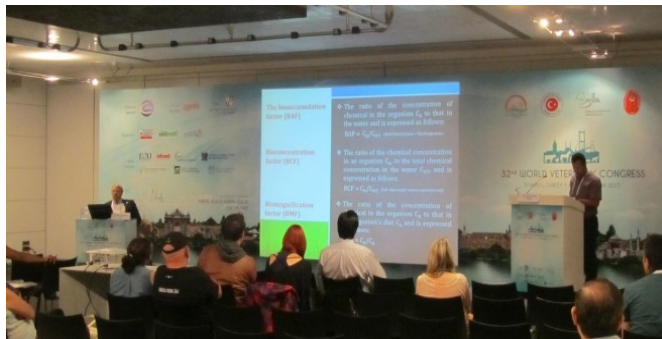
Top:  
Ali  
Muhidin  
Candy  
Store



Right:  
A pet  
shop,  
Istanbul  
style.



The night  
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capped  
off with  
a fine  
meal at  
one of  
their  
"best  
kept  
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Our conference lecture room was well equipped and we enjoyed some excellent CE talks. Equally well appointed was our WAVMA booth (below), which allowed us to meet many potential new members.



Our 2015 Annual General Meeting and dinner, was held from 7-11 PM on September 15, 2015 at the Pasazade Restaurant, in the Hotel Erboy in Istanbul. The warm, breezy evening was perfect for dinner, with our tables set up on the open veranda of the restaurant. Everyone enjoyed the company of our members and guests from all over the world, with local drinks to sample and an amazing multi-course dinner to eat.



Our resident magician and President-Elect Nick Saint-Erne wowed the crowd with some slick money changing tricks, and President Chris Walster recapped some of the highlights of his year in office.

Looking forward to next year, President-Elect Nick Saint-Erne and I are currently considering which venue to select for our 2016 Annual General Meeting. As soon as plans have been finalized, I will send out a general notice. The Fish Veterinary Society Annual Conference will be held from March 22-24, 2016 in Edinburgh, Scotland, UK. WAVMA will be co-sponsoring that meeting and I will be attending along with several WAVMA Executive Board members. The 3rd Annual AAFV Conference is being held at the North Carolina Aquarium at Pine Knoll Shores, NC on April 10, 2016. This meeting will precede but not be affiliated with the Eastern Fish Health Workshop. We are currently in discussion with the AAFV meeting's organizers about co-sponsorship. If any of our members are planning to attend either of these events or would otherwise like to offer their input, the Meetings Committee would certainly welcome it. Please email me at: [cypcarpio@aol.com](mailto:cypcarpio@aol.com).

**Julius M. Tepper** DVM CertAqV  
Meetings Committee Chair  
[cypcarpio@aol.com](mailto:cypcarpio@aol.com)



**2016 WAVMA Elections Results**

As part of the 2015 WAVMA Annual General Meeting held in conjunction with the World Veterinary Congress (Istanbul, Turkey) we are pleased to announce the following were elected to serve as Executive Board members for 2016:

- President – Dr. Nick Saint-Erne (USA)
- President-Elect – Dr. Laura Urdes (Romania)
- Past-President – Dr. Chris Walster (UK)
- Secretary – Dr. Devon Dublin (Guyana/Japan)
- Treasurer – Dr. Sharon Tibeiro (USA)
- Directors-at-Large – Drs. Stephen Reichley (USA), Chad Harris (USA) & Richmond Loh (Australia)



*WAVMA Annual General Meeting Dinner*

*L to R: Erdem Danyer, Isil Aytemiz, Chris Walster, Babak Omrani, Sanaz Omrani, David Scarfe.*





David Scarfe and Nick Saint-Erne lecturing

One of the many delights of Turkey:



Karakoy Fish Market on the Asian side of Istanbul



## PRIVILEGES & BENEFITS OF WAVMA MEMBERSHIP

**Aquatic Veterinary e-Learning**  
Supporting WAVMA's WebCEPD, PubCEPD  
CertAqV & Clinical Cases Programs.



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

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

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

Receive *discounted* subscriptions to publications & meetings

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

Join *listservs* to discuss clinical cases & other issues

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

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

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

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

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

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

Participate in veterinarian and client surveys

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

## Student Committee

### Project Updates

The mentor program has progressed to be incorporated into the membership database. This will allow each WAVMA member to check a box marking if they are willing to be a mentor. Until the beta testing is required I believe this is now out of the Student Committee's hands.

Externship listing: The Student Committee is still working to add contacts for externships to the excel spreadsheet. The invitations to add their externship to the database will be sent out by Dr. Scarfe and others from that list.

"Townhall Meeting": This is a meeting idea we had to bring several schools and a board of speakers together over a webinar to discuss various topics related to aquatic animal health. Currently I, representing Mississippi State, Jacqueline Elliott (Tuskegee), and Megan Strobel (Florida) are working to determine the layout for the first meeting between our schools. This will be a beta test for other meetings to come. Our hope is to have this meeting mid-way through January.

Student Chapter Survey: We have put together a survey to send out to all the student chapter contacts for feedback regarding various topics including materials made available to the chapter, the level of collaboration between chapters, and recruitment. The survey is in the final steps of proof reading, and will be placed on survey monkey afterwards. We are looking to send this out in the beginning of the new year.

One of the first meetings of the new year will be focused entirely on policy and procedures that the Student Committee follows to be placed in a formal document. If you have suggestions for how you would like us to operate with the other committees or in general I would welcome the feedback.

### Other things of note

I apologize for not making it to the last several meetings due to my school schedule, but if you have any questions or anything you want to talk with me about please let me know. I would like to see this organization continue to grow, and I want to do my part to make that happen if possible. My e-mail is [justkrol21@gmail.com](mailto:justkrol21@gmail.com)

Thank you,

**Justin Krol**

Student Committee Chair

[justkrol21@gmail.com](mailto: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** (established 2015)

**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** (established 2015)

**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**  
(in development)

**Ross University**

(in development)

**University of Georgia (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).



## Pitts Education Awards Program Helps Students and Recent Graduates Increase Aquatic Veterinary Experience

### Applications for the 2016 Program close on February 29, 2016

The John L. Pitts Aquatic Veterinary Education Awards Program was started in 2010 to honor the late John L. Pitts, DVM, who was passionate about student involvement in the profession and a global approach to aquatic veterinary medicine. John's service to the profession began as a veterinary student in 1969 when he helped create a national chapter for the Student American Veterinary Medical Association. He also helped in the formation of the National Association of State Aquaculture Coordinators, the Aquaculture and Seafood Advisory Committee of the AVMA, and he worked tirelessly to shape and encourage the passage of the Minor Uses and Minor Species Act of 2004. To continue John's vision, a small, all-volunteer committee comprised of individuals representing private practice, academia, past recipients, WAVMA student members, and the Pitts family work to administer this program.

The Education Awards Program's goal is to assist veterinary students and new veterinary graduates in becoming more involved with aquatic veterinary medicine by providing financial support for activities that broaden their understanding of the varied career opportunities within the field. Since its inception in 2010, the Program has awarded over \$38,000 to 58 veterinary students and recent graduates from 37 colleges and universities across 4 continents. These funds have helped recipients participate in externships at public, private, and academic institutions and attend conferences, workshops, and short courses all over the world.

The Program accepts applications from currently enrolled veterinary students, or recent graduates (within the past 24 months) of any nationally recognized veterinary school or college throughout the world, that awards a degree allowing the person to practice veterinary medicine. Applicants must submit an application form and resume or curriculum vitae. They must also have someone who can attest to their interest and/or involvement in aquatic veterinary medicine as well as their potential to contribute to the profession send a letter of recommendation on their behalf.

**All application materials are due February 29, 2016; late or incomplete applications are not considered.** Awards will be announced by the end of April 2016. After completion of their activity, all awardees must provide a written report for publication in *The Aquatic Veterinarian*, a quarterly publication of the World Aquatic Veterinary Medical Association (WAVMA), and are encouraged to give a presentation about their experience to other veterinary students.

For more information on this Program and to download an application form, please visit <http://www.wavma.org/scholarships>.

For any questions, please contact [PittsEduAwards-Admin@wavma.org](mailto:PittsEduAwards-Admin@wavma.org).



*The tastes of Istanbul: Coffee, fruits, spices and sardines at the street markets.*

*Photos by Nick Saint-Erne*

**SCHOLARSHIP COMMITTEE:  
2015 WAVMA Aquatic Veterinary  
Education Award Recipient Reports**

**Shelby L. Loos**

DVM Candidate 2017, University of Florida

As a third year Aquatic Animal Medicine Certificate student at the University of Florida, I was fortunate enough to have been selected as one of the awardees for the 2015 John Pitt's Education Support Program. My intent for use of the award was twofold, to attend the 5<sup>th</sup> Florida Marine Mammal Health conference and additionally to participate in the University of Florida's SeaVet Clinical Training. I am extremely appreciative to have been able to be a part of these two events, not only has my interest in aquatic animal medicine been further strengthened, but my knowledge base was widened and I was exposed to many aspects of the field that I had not yet come across in my educational career thus far.

The 5<sup>th</sup> Florida Marine Mammal Health Conference was hosted by the University of Florida's Aquatic Animal Health Department. However, do not let the title "marine mammal conference" mislead you, as the theme of the conference took on a unique perspective of "One Health" that intertwined all aspects of aquatic animal and ecosystem health. Each interdisciplinary

subject matter is ultimately equally important in the conservation of our aquatic ecosystems, and therefore each species, including marine mammals, depends on all other species of flora and fauna for survival. While the conference focused on current threats, monitoring and research techniques, and infectious diseases of Florida, all of the concepts presented can be applied to ecosystems and animals worldwide. Having the ability to attend this conference was important to me, as I have grown up in Florida and its aquatic nature is what inspired me to pursue a career in aquatic animal medicine.

Three major topics that are currently affecting Florida's animals and ecosystems that were heavily discussed during the conference include the Morbillivirus Unusual Mortality Event of the East Coast, Harmful Algal Blooms and Brevetoxin exposure, and finally the Unusual Mortality Event of the Florida Manatee in the Indian River Lagoon. Amongst these topics, I was exposed to many different research techniques currently being utilized to study various species including serology, PCR genomic characterizations, toxicological analyses, thromboelastography and many more. Additionally, these major topics included a variety of talks regarding non-mammalian species such as benthic macrophytes, coral reefs, aquatic birds, invertebrates and fish, further exemplifying how in order to conserve one species we must care about all.

One aspect of the conference that made it particularly unique is the discussion panel held at the end that included government officials, financial advisors and scientific researchers. The discussion that took place gave insight on how to take the findings from one's research and turn them into positive actions for the ecosystems, encouraging us as scientists and veterinarians that change can occur for the better, even in face of the dire circumstances that our ecosystems are currently in.

Two weeks following the conference, I was a student as part of the University of Florida's SeaVet Clinical Training program. This program enhanced my aquatic animal knowledge and counted as credit towards my Aquatic Animal Medicine Certificate, while allowing me to meet other students and veterinarians from around the world who are just as passionate for the learning and conservation of aquatic species as I am. The course was a balanced mix between didactic lectures and interactive field trips. Professionals proficient in each topic were brought in to lecture and were therefore able to relay personal and unique real life experiences regarding each subject. These original perspectives enabled the students to relate to the topic at hand, despite most of us never having done, for example, a physical exam on a whale shark before.

The didactic courses covered a wide range of topics including water quality, anesthesia, medicine, surgery,

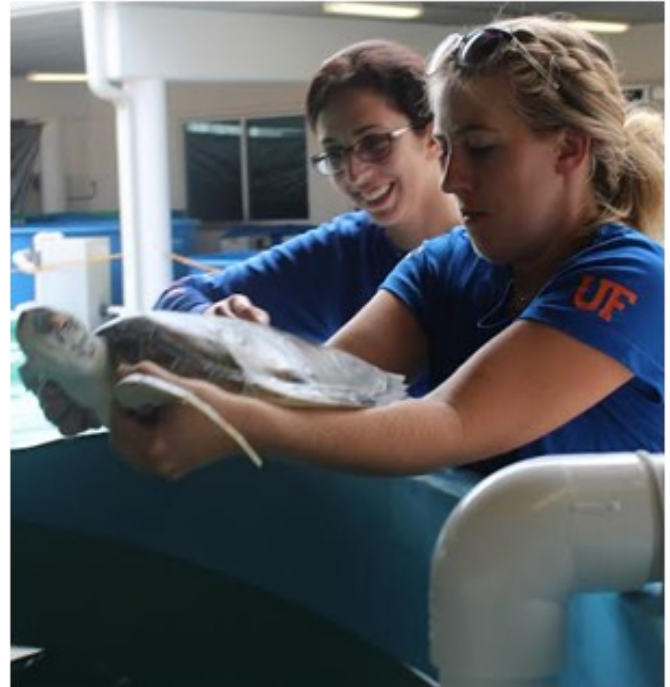


infectious diseases, imaging techniques and behavior of a wide range of species including fish, cetaceans, pinnipeds, sea turtles, elasmobranchs and penguins, both in the wild and in a managed care setting.

The first trip we took with SeaVet was to MarineLand, in St. Augustine Florida. Here we learned how the managed care facility was run, various husbandry procedures that they do with their population of Atlantic bottlenose dolphins, and we were able to participate in an interaction program. This interaction allowed us to get up close to the animals to learn normal behavior and movement, how to determine location of blood draws, do a physical exam and witness the interactions between the trainer and animal.

A couple of days later we drove down to Clearwater Marine Aquarium where we focused on their sea turtles in rehabilitation. It was time that many of the animals needed their bloodwork rechecked, so we assisted with restraining and the blood draws of the animals, many of which were victims of human interactions or Fibropapillomatosis. Afterward, we were shown the technique on how to do a full physical exam on a sea turtle in addition to special husbandry techniques with their bottlenose dolphins, including obtaining fecal and urine samples, hydrations and full physical exams.

Our final trip was to Tampa's Lowry Park Zoo to tour their manatee rehabilitation facility. We split into two groups to do a full health assessment on two of the individuals that are reaching their time for release this coming winter. Both had been rehabbed for cold stress, a common syndrome affecting manatees with an etiology not yet fully understood. Upon restraint that required at least 6 people, these gentle giants are



much stronger than one would imagine, we were able to obtain blood and morphometric measurements, followed by PIT tagging each animal. These last two trips were particularly interesting to me as I have a strong interest and background in strandings and rehabilitation of aquatic species.

Overall, I am extremely appreciative to have been able to participate in both the conference and SeaVet training. Through these experiences I met many intelligent people who are making a strong and positive difference in the field of aquatic animal medicine, and I walked away with a wealth of knowledge that will no doubt help me become a better clinician in my future pursuit in aquatic animal medicine!



*New [WAVMA goodies](#).  
 This style and many more available now.*

## COMMITTEE REPORTS

**SCHOLARSHIP COMMITTEE:  
2015 WAVMA Aquatic Veterinary  
Education Award Recipient Reports**

**Ashley Heard-Ganir**

DVM Candidate 2016, Texas A&M University

Firstly, I would like to thank WAVMA for supporting me financially in my goals to obtain experience in aquatic animal medicine. My initial intent for these funds was to do a clinical hour at Texas Sealife Center in Corpus Christi, TX during spring break of my 3<sup>rd</sup> year in veterinary school. Unfortunately, due to an illness of the clinician, Dr. Tim Tristan, we had to cancel my clinical rotation. Luckily, I was able to arrange for some time shadowing Dr. Osborne, who is one of the two full-time veterinarians at SeaWorld - San Antonio. During my time at SeaWorld, I was able to observe and assist with many procedures, discuss medicine topics in cetacean and pinniped species with both veterinarians, and actively participant in rounds. There were a few particular cases which stood out, to me, as some of the best learning opportunities I have received thus far in cetacean and pinniped medicine.

Getting to view the anesthetic process and case work-up of a sea lion who was being re-evaluated after antibiotic therapy (of several months duration) for an abscessed tooth was one of the most rewarding experiences I took away from my time at SeaWorld. I was able to learn about the sedation protocols, safety management and protocols for team members and the animal, how the squeeze cage is used, the treatment plan for the animal, radiographic positioning, and I was given the opportunity to assess radiographic changes. Equally as beneficial was getting to witness the annual vaccination of many of the bottlenose dolphins. This required a large pool drop, and was a considerable effort on the part of many trainers and both veterinarians. I was actually truly unfamiliar with the detrimental effects of *Erysipelothrix* in cetacean species. This experience introduced me to this topic and I am now familiar with all aspects of this infectious disease. I was also able to participate in reproduction ultrasounds of some of the bottlenose dolphins, which was something I had never seen done.

My access to the vast experience of both veterinarians allowed me to expand the knowledge I already have for cetacean and pinniped species. I was able to discuss drug uses and pharmacokinetics, theriogenology, and species specific sensitivities, such as that with using steroids in cetaceans. In addition to adding many new drugs, treatments, and techniques to my repertoire list, I was also able to gain the "clinical application" of the knowledge I already had. I feel that this was very beneficial in helping me see where the literature and "clinical" applications of those concepts

aligned. Sometimes it takes seeing something done to truly understand it.

In addition to gaining knowledge through case observation and discussion with the veterinarians, I was also able to participate in rounds. This involved visiting each area (such as white whales and dolphins) 1-2 times daily. Here I got to see the interconnection between trainers and husbandry behaviors, how the veterinarians interact with and work alongside the trainers to accomplish the goals of the day, how the med pool system worked, and many other things such as daily husbandry. This is a really important aspect of aquatic medicine in this setting. You cannot accomplish treatments, etc. without working with the training staff and the process is one that requires patience. It was a unique opportunity to see how patient care was optimized at this program. All staff try to utilize and elicit volunteer behaviors rather than forcing or restraining the animals.

Lastly, I was able to network during my time at SeaWorld. I think this was just as important as the knowledge I walked away with. Dr. Osborn was able to give me some great career advice and I am so grateful for the opportunity to have shadowed him.

I want to thank WAVMA again for this amazing opportunity. Without the funds your program provided, which covered my hotel and travel costs, I would have not been able to have participated in this tremendous learning opportunity.

*Jellies - Photo by Nick Saint-Erne*



**Nora Hickey**

University of Wisconsin, Class of 2018

With the help of the John Pitts Educational Support Program, I was able to spend a three week externship this summer with Dr. Don Lightner and his team at the University of Arizona Aquaculture Pathology Laboratory. This was a particularly exciting time for me to be at the lab because of all the work they were doing with an emerging shrimp disease called Early Mortality Syndrome (EMS) or Acute Hepatopancreatic Necrosis Syndrome. It is not every day that one is able to see how aquaculture health professionals research and respond to a novel pathogen. Dr. Kathy Tang-Nelson taught me about many of the molecular techniques that the lab is using, including *in situ* hybridization and qPCR.

In addition to watching and helping with the EMS work and other research projects, I also learned about the diagnostic tests performed by the lab. This was an OIE-certified lab, so it was extremely interesting and informative to see the entire process—from logging samples into the lab to the testing protocol to the final reports and recommendations. I have developed a much better understanding of what happens to samples after a veterinarian submits them, and also what I can do when I am submitting samples to a diagnostic lab so that my clients can get the best results possible.

I did not just work with dead shrimp parts, though! The lab also has a live shrimp culture facility where they run challenge studies and quarantine shrimp shipments. One of my favorite parts of my time at the lab was helping Dr. Jee Eun Han with a challenge study. We grew up the strain of *Vibrio parahaemolyticus* that causes EMS and then used reverse gavage to infect shrimp with the bacteria. Within 24 hours, there was 100% mortality, and we used the infected tissues for an experiment.

Much of what I learned at the Lightner lab will be helpful outside of shrimp medicine. Dr. Carlos Pantoja took several hours each day to look at shrimp histopathology slides, and at the end of the externship, he gave me a quiz where I successfully identified all of the OIE reportable diseases of shrimp based upon microscopic lesions. Many of the lesions and patterns I learned to recognize are present in diseases of other species of animals. Beyond just reading slides, Dr. Rita Redman-Lightner also took me through the process of creating a histological slide, starting with preservation of the shrimp tissues and ending with staining and cover-slipping the final product.

This was an extremely educational experience, and I am very grateful for everyone who has helped me make opportunities like this possible. Thank you to everyone at the Lightner lab for letting me join you and taking the time to teach me this summer. I would like to



put in a special mention of my advisors Dr. Myron Kebus and Dr. Michael Collins, who have been infinitely supportive in helping me plan my fourth year curriculum. Finally, thank you to Madelyn Pitts and the John Pitts Educational Support Program for their financial aid and commitment to helping veterinary students explore careers in aquatic animal health!

*Monterey Bay Aquarium - Photo by Nick Saint-Erne*



**SCHOLARSHIP COMMITTEE:  
2015 WAVMA Aquatic Veterinary  
Education Award Recipient Reports**

**Julianne Richard**  
Tufts University, Class of 2017

This past summer, I was incredibly fortunate to participate in the MARVET program at St. Matthew's University on Grand Cayman through the gracious help of the John Pitts Aquatic Veterinary Education Support Program. The experience I had there was easily one of the greatest of my veterinary career so far.

Having never traveled internationally before, I was a bit nervous about everything. But once we all arrived, the students and staff of St. Matthew's were nothing but gracious and helpful hosts. Our first full day was spent with introductions and great lectures, followed by a kayak tour through the mangrove ecosystem. Each following day of the two-week course would proceed in the same way: with lectures in the morning, labs or other activities in the afternoon. By the second day, we were all well acquainted with the set-up and ready to jump in to studying corals with Dr. Ilze Berzins (POLYPS!).

We learned about a wide variety of topics, from wildlife ecotoxicology to penguin medicine and everything in between. The lectures really opened my eyes to the scope of the aquatic veterinary field and potential career pathways. I was surprised at how fascinating I found the subject of fish and elasmobranch transport. My previous experience in aquatic medicine had mostly consisted of animals already contained in the aquarium setting, and I never appreciated the sheer amount of planning and effort it takes to move animals quickly and safely (whale sharks, especially!).

Other activities included snorkel and dive trips mapping coral reef transects, as well as physical examinations of sea turtles at the Cayman Turtle Farm and dolphins at the Dolphin Discovery Park. We participated in several diagnostic labs, doing everything from testing water quality samples and making blood smears of sea turtle blood, to performing necropsies on various aquatic birds and drawing blood from anesthetized fish. We even had the opportunity to discuss annual wild southern stingray assessments with Dr. Tonya Clauss before jumping into the water with them at Stingray City. The integration of lectures and labs together was done effortlessly—learning about the plight of the endangered blue iguana before we journeyed to the other end of the island to a recovery program really drove the point home that what we are doing does make a difference. We had such a great time at every event, and learning truly became fun.



*Drawing blood from a green sea turtle  
at the Cayman Turtle Farm.*

Finally, the mentorship of all the MARVET instructors was incredible. They took the time to answer all of our questions, assist us with anything we needed help with, and push us to follow whatever paths our careers take us. The opportunity to meet and chat with these wonderful people, who are some of the best and brightest of our field, was something for which I will always be grateful. The knowledge I gained through the program will serve me well throughout my veterinary career.

It is with my great appreciation that I thank the supporters of the John Pitts Aquatic Veterinary Education program for their generosity. MARVET allowed me to further explore aquatic animal medicine, improve my clinical proficiency and problem solving skills, and strengthen my commitment to providing the best medicine possible.

The Cayman Department of Environment allowed us to tag along on one of their sea turtle nest excavations. Almost all of the eggs had already hatched, but there were a few deceased animals still present in the nest, including this albino turtle that had not fully developed.



*Beautiful Cayman sunset.*



*Such diversity of marine life is present in the Cayman Islands!*

*School fire drills provide a great opportunity for a group photo!*



**WAVMA Past President, Dr. Mohamed Faisal, Receives Prestigious Award**

Recognized for his work to enhance the understanding of the nature and impact of endemic and emerging pathogens on fishes in the Great Lakes basin, in June 2015 the Great Lakes Fishery Commission presented Dr. Mohamed Faisal with the 2015 Jack Christie/Ken Loftus Award for Distinguished Scientific Contributions Toward Understanding Healthy Great Lakes Ecosystems.

The award, which the Commission presents annually to those who have made major scientific contributions to Great Lakes ecosystems, honors the legacy of Jack Christie and Ken Loftus, two Ontario Ministry of Natural Resources eminent fishery scientists. Commissioner Dr. Bill Taylor, University Distinguished Professor in Global Fisheries at Michigan State University, presented Dr. Faisal with the award during the Commission's 60th annual meeting in Grand Rapids, Michigan for his astoundingly diverse and impactful research related to fish pathogens in the Great Lakes.



*Great Lakes Fishery Commission Commissioner Dr. Bill Taylor (left) presents Dr. Mohamed Faisal with the 2015 Jack Christie/Ken Loftus Award for Distinguished Scientific Contributions Toward Understanding Healthy Great Lakes Ecosystems.*

*Photo: T. Lawrence, GLFC.*

Dr. Faisal currently serves as the S.F. Snieszko Endowed Scholar and Professor at Michigan State University's Colleges of Veterinary Medicine & Agricultural & Natural Resources. Dr. Faisal's research and outreach contributions have provided managers and scientists with new knowledge about endemic and emerging pathogens in the Great Lakes basin, and his work has greatly advanced our ability to understand and respond to the threats that they pose to our Great Lakes ecosystems.

He has also helped understand the diseases themselves, like Bacterial Kidney Disease (BKD) and Viral Hemorrhagic Septicemia (VHS). When VHS reared its ugly head in the Great Lakes several years ago, he helped the US and Canada understand the nature of the outbreak and the level of fish susceptibility to the virus, and he led the development of non-lethal diagnostic methods.

Dr. Faisal's lab works to develop methodology about how to best use technology and assays and leads the way in the development of vaccines. His lab covers everything from understanding the pathogens themselves to how to monitor, contain, and stop the spread. He excels at making his lab's findings understandable and available to regional, national and international fishery managers and scientists. He has also provided expert guidance to fishery managers about risk assessment and management to assist in making decisions about allowing fish to be moved within the basin. Congratulations to our member, Dr. Faisal!

**A. David Scarfe PhD, DVM, MRSSAf, CertAqV**

## 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](mailto:WebAdmin@wavma.org).



### WAVMA Board Member, Chad Harris, Named One of "America's Favorite Veterinarians"

Chad Harris, DVM, a 2012 Ross University School of Veterinary Medicine graduate, is one of 20 finalists who were named "America's Favorite Veterinarians." The contest was held by the American Veterinary Medical Foundation (AVMF)—the charitable arm of the American Veterinary Medical Association. Dr. Harris and the 19 other winners were selected from a pool of 500 nominees.

Dr. Harris runs North Austin Animal Hospital, which provides care to dogs, cats, aquatic pets, birds, and exotics in the Austin, TX area. Hired in 2012 as an associate veterinarian straight out of RUSVM, Dr. Harris loves his work, whether he's conducting administrative duties in his current role as chief of staff or getting hands-on with the animals he's treating that day.

"The hands-on work with the animals is where my heart is, but that's a different beast from the administrative work, so to speak," he says. "I do get some enjoyment running the business aspect of it and being a role model for my associates." Both of those associate vets, it turns out, are RUSVM graduates—Jean Hepper, DVM (Class of 2014) and Kat Judd (Class of 2012).

So what's a typical day like for Dr. Harris? "Monday through Thursday, I'm seeing appointments," he says. "That can be anything, ranging from dogs to cats to the occasional exotic, like a reptile or bird. And my claim to fame in Austin is that I see fish as part of my practice; so I'll treat the occasional fish that comes in, or do house calls."

He'll also perform surgery during one of those days—mostly routine procedures, orthopedics, or soft tissue surgery. Fridays are reserved for administrative duties: He'll meet with his staff to discuss financials, the state of the business, and potential improvements.

Dr. Harris is a trustee for the Texas Veterinary Medical Foundation (TVMF), which is the nonprofit branch of the Texas Veterinary Medical Association. In addition to his duties with the TVMF, Dr. Harris also is a board member for the World Aquatic Veterinary Medical Association.

But the project closest to his heart is an outreach initiative just for the animals. North Austin Animal Hospital partners with the TVMF and Meals on Wheels—a charitable organization that delivers hot meals to the elderly, disabled, and homebound—to provide free veterinary care to animals as part of the Pets Assisting the Lives of Seniors (PALS) program. In this initiative, participating clinics provide no-cost care to pets belonging to participants. The TVMF and Meals on Wheels pick up the tab for this charity care.



"Our clinic was one of the pilot clinics," Dr. Harris says. "Volunteers go out, pick up these animals, and transport them to the clinic, and they then get free care that the animals, honestly, probably wouldn't have gotten otherwise." In 2015 alone, Dr. Harris estimates that 180 animals will receive charity with this initiative.

Dr. Harris admits that he didn't know precisely what he was going to do after graduating RUSVM in 2012, but when he got the job at North Austin Animal Hospital, it just felt right to him.

"Just like anyone else, when you graduate, you never know exactly where you're going to end up," he says. "You have ideas of where you might *want* to go, and Austin was definitely at the top of my list. But when I ended up at the practice, it felt like it was a perfect fit, a round peg and a round hole. And even with that perfect fit, things have *still* gone exponentially better than I could have dreamed."

"It's where I wanted to be," he says.

See the full article at:

<http://www.rossu.edu/news/RUSVM-Grad-Named-Americas-Favorite-Veterinarian.cfm>

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## 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](mailto:AVNeditor@wavma.org).

**Questions & Answers from the WAVMA Listserv**  
([WAVMA\\_Members-L@wavma.org](mailto:WAVMA_Members-L@wavma.org))

**Disease with Ornamental Shrimp**

Hello group,

I was wondering if anyone has experience with ornamental shrimp? A friend sent me these photos asking if I knew what it could be. The only information he gave me is the shrimp are dying. I asked him other information to try to help. In meanwhile if someone could suggest ideas it would be great.



Regards,

**Giana Bastos Gomes**, BVMed, MVMed.  
PhD candidate  
E: [giana.bastosgomes@my.jcu.edu.au](mailto:giana.bastosgomes@my.jcu.edu.au)  
Centre for Sustainable Tropical Fisheries and Aquaculture  
College of Marine and Environmental Sciences  
James Cook University  
Web: [www.marineparasites.com](http://www.marineparasites.com)

Hi Giana,

Melanin-deposition is a non-specific reaction in crustacea to insults. My guess would be a fungal or parasitic cause. Histopath would provide useful leads.

**Dr Richmond Loh**

*DipProjMgt, BSc, BVMS, MPhil (Pathology),  
MANZCVS (Aquatics & Pathobiology), CertAqV,  
CMAVA, NATA Signatory.*  
[THE FISH VET](http://www.thefishvet.com.au), Perth, W.A., AUSTRALIA.  
<http://www.thefishvet.com.au>

Would it be possible that the black granules are something in the intestines that the shrimp ingested? I have seen problems in fish due to powdered activated carbon granules from the filter getting into the tank water.

With dissection and microscopic examination you should be able to tell if the black is from melanophores or from something in the intestines. Although in the photos it looks more diffuse than if it were just in the intestinal tract.

**Nick Saint-Erne**, DVM CertAqV

Certified Aquatic Veterinarian  
Specialty Merchandising - Pet Quality and Education  
PetSmart, Inc.  
email: [nsainterne@petsmart.com](mailto:nsainterne@petsmart.com)

The details will always be important (e.g. are these shrimp in some sort of production system in large numbers, or just a few in someone's aquarium, etc)....but black spots in/on shrimp can also be caused by several types of bacterial infections as well as from the other causes mentioned.

If just a few shrimp are involved it'd certainly be a good idea to isolate them from other animals in the system -- if that hasn't already been done -- while pursuing additional diagnostic assays/workup.

**Dr. Peter L. Merrill**

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**Using Veterinarians To Increase Profits in Aquaculture:** A Fourth-Year Veterinary Student's Directed Study at the Wisconsin Department of Agriculture, Trade, and Consumer Protection  
 By **Nora Hickey**

Many animal production industries, including the poultry, swine, beef, and dairy industries, use veterinarians to increase their profits. Veterinary services such as biosecurity plans, routine health assessments, and disease investigations help producers reduce losses and improve efficiencies. Dr. Myron Kebus, the State Aquaculture Veterinarian at the Wisconsin Department of Agriculture, Trade, and Consumer Protection (WDATCP), helped me create a directed study project to examine how fish farmers in Wisconsin are using veterinarians compared to other animal production industries. We were particularly curious as to whether or not there was enough work for Wisconsin veterinarians to support themselves with aquaculture practice.

Wisconsin is an "average" aquaculture state—it ranked 26th in the US for total aquaculture products in the 2005 Census of Aquaculture. Most of the registered fish farms in Wisconsin are small and non-commercial; of the 2800 total registered fish farms, only 125 are commercial. Baitfish and trout are the major sources of fish production in Wisconsin, ranked 4th and 5th in the US respectively.

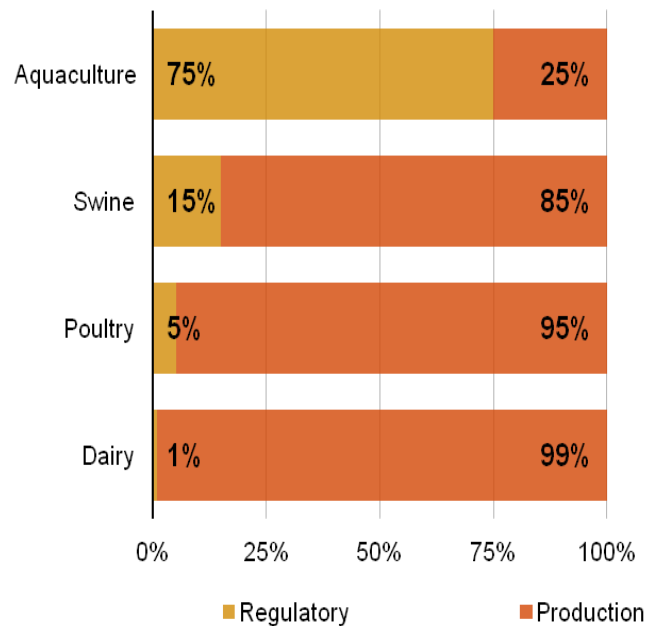
WDATCP developed a Fish Health Medicine Certificate Program in 1999 that certifies veterinarians to become Qualified Fish Health Inspectors (QFHI) and perform inspections and issue health certificates for the interstate movement of fish. I used the WDATCP database with information from over 3500 fish health certificates that have been issued since the beginning of the program, as well as interviews with veterinarians and fish farmers, to explore the current role of veterinarians in Wisconsin aquaculture. One of my favorite parts of this project was riding along with two veterinarians to visit fish farms all over the state and help with necropsies and sample collection for inspections.

All of the veterinarians I talked to were interested in increasing the amount of aquaculture work they do. This makes sense—what veterinarian doesn't want to expand his or her practice? In addition, many veterinarians expressed interest in aquaculture work because of the novelty; it was interesting and different from what they were doing in their everyday practice. Interestingly, many retired veterinarians either started or continued doing aquaculture work during their retirement; many of the veterinarians more active in aquaculture practice were retirees. The vast majority of veterinarians interviewed reported spend-

ing less than 1% of their time doing aquaculture work. I also found that 2/3 of the inspections had been done by just 2 inspectors, with the other 1/3 of inspections being distributed between 32 other inspectors. Wisconsin does not currently have enough aquaculture work to support even one full-time aquaculture veterinary practitioner.

I also compared the type of work aquaculture veterinarians were doing to the type of work veterinarians in other animal production industries do. Specifically, I asked Wisconsin veterinarians working in dairy, poultry, swine, and aquaculture sectors what percentage of their time they spent doing regulatory work (i.e. inspections and health certificates) versus production work (i.e. herd health, disease investigation/treatment, etc.). The results can be seen in the figure below.

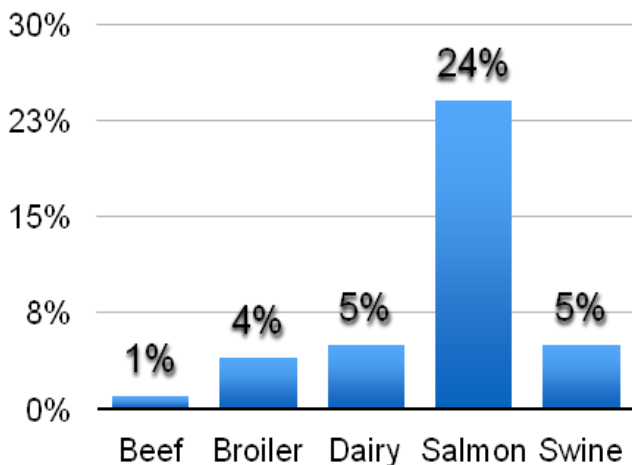
**Veterinary Services by Production Species: Percentage of Time Spent Doing Regulatory Vs. Production Work**



There is an enormous disparity between the amount of production work done in aquaculture compared to other animal production sectors. Veterinarians in Wisconsin could triple the amount of aquaculture work currently being done if the ratio of regulatory versus production services was consistent with other animal production industries. However, fish farmers do not appear to be poised to dramatically increase their use of production veterinary medicine services.

Many different insights were offered as to why aquaculture is not using veterinary production services. Several veterinarians stated that while they felt comfortable doing inspections, they did not feel they had the knowledge necessary to provide production services to a fish farmer. Other veterinarians were skeptical that fish farmers would benefit from production services. This last statement really surprised me, and Dr. Kebus suggested that I explore animal health statistics in various animal production industries to see how aquaculture compares to beef, broilers, dairy, and swine. From the figure shown below, there is obviously tremendous room for improvement.

### Mortality Rates for Various Animal Production Industries



Missing out on the production services that veterinarians provide to other animal production industries may mean that fish farmers are also missing out on the increased profits that poultry, swine, beef, and dairy farmers enjoy secondary to these services. In addition to the Wisconsin Fish Health Medicine Certificate Program for veterinarians, WDATCP created a second program for fish producers. In a pre-course survey, one-third of the producers did not know if there was a fish veterinarian in their area; and one-half of the producers had never had a fish health assessment conducted at their farm. This raised many questions for Dr. Kebus and me:

Are fish farmers aware of and do they understand the production services veterinarians provide?

How much money are fish farmers losing to losses from disease?

Can fish farmers afford to pay veterinarians at a rate competitive with other animal production industries?

How much money would fish farmers save (if any) by utilizing veterinary services?

Many of the large fish farms already employ veterinarians—why aren't smaller fish farms using veterinarians to improve production?

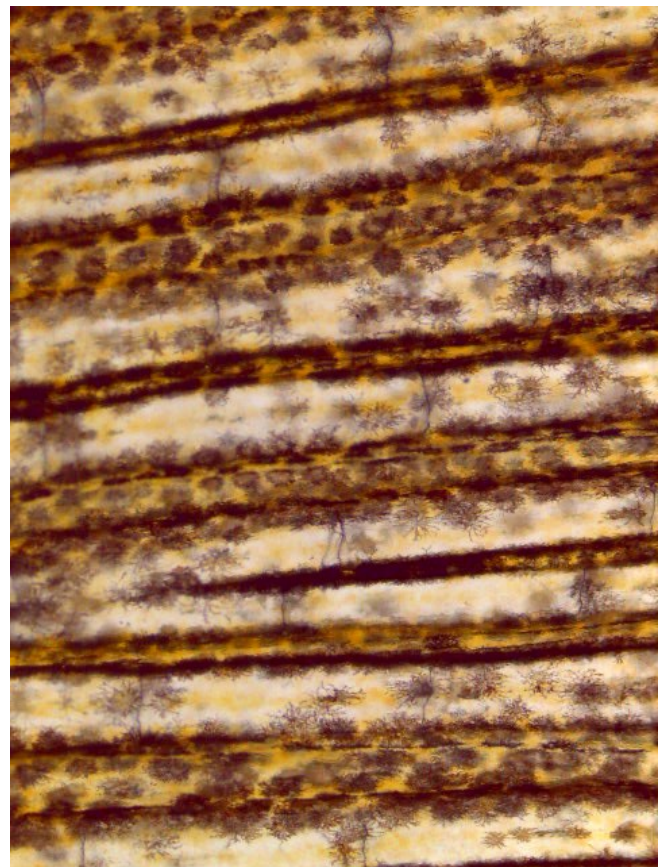
Working with Dr. Myron Kebus and Dr. Michael Collins was an excellent experience. My directed study would not have been possible without their mentorship. I am extremely thankful for all of their guidance and assistance.

This project has raised as many questions as it has answered. I will be presenting information on this topic at Aquaculture 2016 in Las Vegas. I am looking forward to hearing what other fish health professionals think about the current and future roles of veterinarians in aquaculture!

### Name That Image!

By Trista Welsh-Becker

Below is a microphotograph of a biopsy sample. Can you name what it is before reading further?



This is an image of a fin clip from a yearling Chinook salmon's caudal fin.

Photo by Trista Welsh  
[trista.welsh@gmail.com](mailto:trista.welsh@gmail.com)

### **Increasing Incidence of Zoonotic *Mycobacterium marinum* Infections in Israeli & Turkish Edible & Ornamental Fish Culture Systems**

**Natan Wajsbort, MSc & Ra'anana Ariav DVM,  
Aqua-Vet Technologies Ltd,**

(Reproduced, with permission, from:

<http://aqua-vet.co.il>)

Aqua-Vet Technologies' professional staff members in Israel and in Turkey are reporting an increase in the incident rate of *Mycobacterium marinum* infections in both edible and ornamental fish culture facilities. *Mycobacterium marinum* infections in freshwater, saltwater and brackish environments affect fin-fish by causing chronic, progressive and slow disease. *Mycobacterium* affects a very wide range of species. Sea Bass and Striped Bass are frequently involved. Good husbandry practices such as strict quarantine protocols, a high-quality diet, as well as regular disinfection can help reduce the clinical manifestation of this pathogen.

*Mycobacterium* is classified as an acid-fast, Gram-positive bacterium because of its lipid-rich cell walls. The rod-shaped bacteria are slightly curved or straight, between 0.2-0.6  $\mu\text{m}$  wide by 1.0-10  $\mu\text{m}$  long. Optimum growth temperatures vary widely according to the species and range from 25°C to over 50°C.

*Mycobacterium* can infect human skin through cuts or scrapes. Hence, it is a zoonotic disease that can be passed from animal species to humans. Well known examples of zoonotic infections include plague, rabies, Lyme's disease, Ebola virus, avian flu, toxoplasmosis, and a long list of intestinal parasites. The most frequent symptom of *Mycobacterium* infection in humans is a slowly developing nodule (raised bump) at the site where the bacteria entered the body. Frequently, the nodule is noticed on the hand or upper arm. Later the nodule can become an enlarging open sore (ulcer). Swelling of nearby lymph nodes usually occurs. This infection can also involve the joints and bones.

During the last few years, numerous human cases of cutaneous *Mycobacterium* infections were reported to the Ministry of Health in Israel. This increase in reporting may be due to increased public awareness and improved diagnostic capabilities, as well as the dissemination of the disease-causing agent to new species, such as ornamental fish.

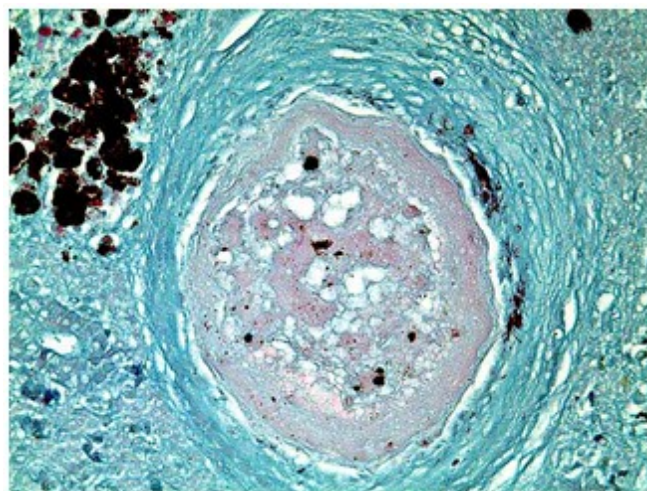
The primary risk factor that linked the majority of the patients with positive skin infections was exposure to ornamental fish culture, either as hobbyists or as professional ornamental fish farmers. Other patients with positive skin infections were linked to exposure from edible fish, either due to occupations

in food fish farming or to other modes of transmission from edible species.

All recorded cases in Israel were in immune-competent people and required long term systemic antibiotic therapy. Most cases required more than one antibiotic medication. Several cases required surgical intervention.



***A mycobacterium granuloma in a sea bream. The bacterium can affect a very wide range of finfish and all species should be considered susceptible.***



***Microphotograph of a visceral granuloma composed of a thick capsule of connective tissue surrounding necrotic center that contains large numbers of acid fast Mycobacterium organisms.***



**An ascending lymphangitic granuloma and series of small nodules starting on the hand and progressing in a line up the arm**



**Nodules on the skin of the hand containing Mycobacterium granulomas**

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Note: US veterinary medicines firm Phibro Animal Health has acquired Aqua-Vet, an Israel-based contract research organization focused on the global aquaculture market.

**A Bug in My Grub**  
By Trista Welsh-Becker

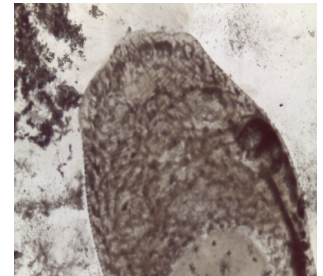
On October 23, 2015 a biological technician handed me a decapitated and gutted carcass of a rainbow trout (*Oncorhynchus mykiss*) that a local fisherman had turned in to her. The citizen was concerned about white spots in the muscle of his rainbow trout caught in Okanogan County, Washington. It was a decent sized fish, 11.5 inches without the head, and the fisherman likely didn't notice the ~1-2 mm white cyst-like lesions covering all the skeletal muscle of the coelom until he finished processing it.

I took the frozen fish carcass and examined what was left of it later (it had been in her freezer about a month already). A skin scrape was negative for parasites. A wet mount/squash prep of one of the cream-colored cysts revealed a trematode-like organism that was slightly too large to fit into the 4x field of view on the microscope.

I took a few pictures and sent them around to other fish pathologists who confirmed it was likely *Clinostomum marginatum*, a parasite known to be found in trout in California and some areas of Washington. The fluke requires at least two intermediate hosts, a snail and a fish, and uses a fish-eating bird definitive host, such as a heron. The metacercaria in fish is also known as the "yellow grub" and can be quite off-putting for the typical angler. This is one good reason to be sure to cook your catch properly!



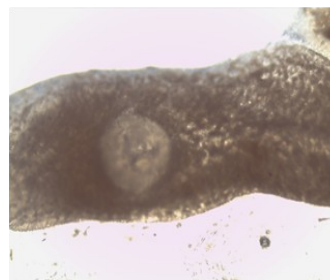
4x view, whole wet mount



10x view, whole wet mount

4x view, whole wet mount

4x view, whole wet mount



**Vesicular Dermatopathy in Lampreys**

By Richmond Loh

**CLINICAL HISTORY**

Wild caught, pouched lampreys (*Geotria australis*) were sourced from Hobart, Tasmania, 30 km upstream in a freshwater river system for research purposes in an educational institution in Western Australia. The fish were adults in the swim-up phase.

Bags with the fish arrived deflated and fish were immediately introduced to aquaria that were cycled 4 months prior to fish arrival. Aquarium water was added to the floating fish bags at 10 minute intervals, over a period 40 minutes to acclimatise the fish to the new water conditions. The room temperature of the facility was maintained at 15°C. The aquaria were covered with black plastic, were with or without substrate (sand or gravel) and had PVC half pipes as hides for the fish. The fish were treated prophylactically with 20mg/L tetracycline.

Skin lesions characterised by bubbly mucus and ulcers began to develop in 6 fish, 10 days into captivity, and death ensued (pictured below). Treatment with Trisulfa and PimaFix were instigated immediately, however, deaths continued over the following 3 days, after which time morbidity and mortality ceased. Fresh and fixed specimens were submitted for investigation.



Skin lesions on pouched lampreys

**PRELIMINARY DIFFERENTIAL DIAGNOSES**

Bacterial infection (e.g. *Aeromonas* spp., *Mycobacteria* spp.), mycotic infection (e.g. *Aphanomyces invadans*), viral infection, immune-mediated disease, physical (trauma) or chemical injury (contaminants/toxins, including trace metals and pesticides).

**WATER QUALITY**

Water temperature was maintained at 11°C. Water quality was monitored daily and the ammonia in the tanks were kept <1 mg/L and nitrite <0.5 mg/L via 25% partial water changes. Water pH was maintained between 7.4 and 7.8 and the nitrate was <5 mg/L. The water supply was tested to be safe for a large number of contaminants/toxins, including trace metals and pesticides.

**GROSS PATHOLOGY FINDINGS**

There was evidence of skin erosions and discolouration in the formalin fixed specimens. However, there were no significant findings in the fresh dead specimens apart from bloody fluid that exuded from the gill pores (probably from autolysis). The intestinal tract was atrophied and some had greenish discolouration to their livers. There were no significant findings on wet preparations of gill biopsies and skin scrapes.

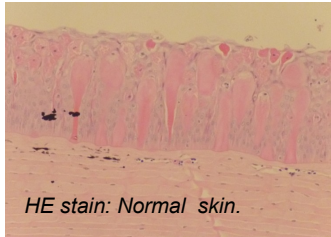
**MICROBIOLOGY FINDINGS**

*Aeromonas hydrophila* was isolated from certain organs (including the liver, skin and eye) from certain individuals. This bacterial species tends to be a secondary invader. No *Mycobacteria* were detected on PCR tests. No fungi were detected on cultures of skin lesions.

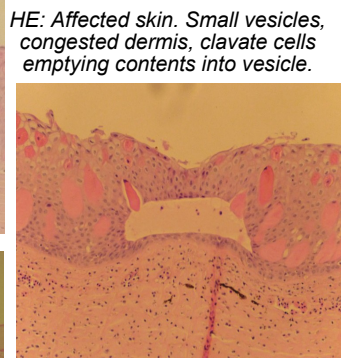
**HISTOLOGY FINDINGS**

Generally, the skin surface was markedly irregular. Lesions ranged from small intraepidermal vesicles with or without proteinaceous contents, to extensive areas of epithelial detachment and/or ulceration, with or without inflammation. The region of detachment occurred approximately 3-4 cell layers above the basement membrane and in many cases, a 2 to 4 cell layer of epithelium remained along the basement membrane (this coincided with the normal microanatomical location of clavate cells). There was degeneration and exocytosis of individual clavate cells, and some appeared to have exuded their contents into the vesicles. The dermis was sometimes congested. The contents of the clavate cells and the proteinaceous material within vesicles had similar staining copper-blue/green characteristics using the PAS technique. There were no significant findings in other organs.

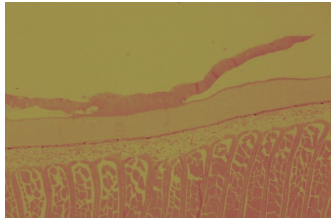




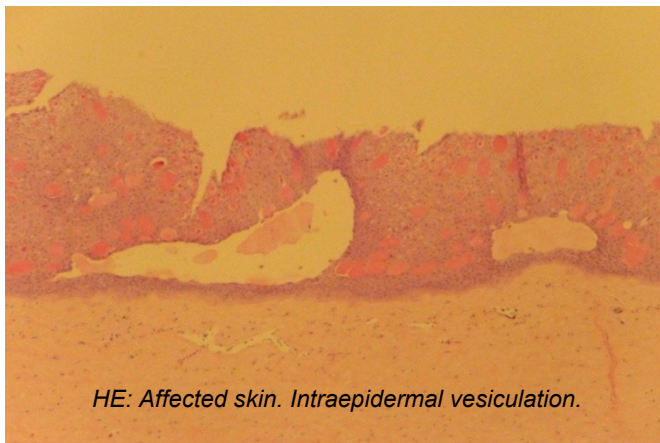
HE stain: Normal skin.



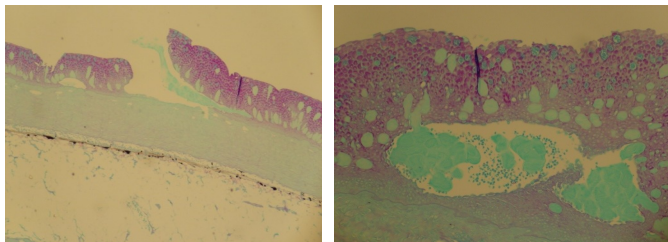
HE: Affected skin. Small vesicles, congested dermis, clavate cells emptying contents into vesicle.



Left - HE: Affected skin. Extensive epithelial lifting leaving thin layer of remnant epithelium.



HE: Affected skin. Intraepidermal vesiculation.



Above two microphotographs - PAS stain: Affected skin. Notice extensive epithelial lifting and proteinaceous material with similar staining characteristics to clavate cells.

### MORPHOLOGICAL DIAGNOSIS

Skin: Vesicular dermatopathy, severe, multifocal to extensive, acute.

### AETIOLOGICAL DIAGNOSIS

Stress – multifactorial – see comments.

### COMMENTS

The region of skin separation corresponds to the normal location for clavate cells. In cases where the basement membrane was covered by 2 - 4 cell layers of epithelium, it is suspected that these are not evi-

dence for re-epithelialisation, but are in fact remnant epithelium after the loss of the separated superficial layer. The lesions were present in the presence or absence of inflammation, suggesting that bacterial and other common inflammatory conditions are less likely.

The role of clavate cells is poorly described, however, they have been implicated in producing substances during stressful events (e.g. predation, trauma, attack) to warn others of the same species of impending danger. In some of the skin lesions examined, there was evidence of the clavate cells exuding material into the cystic structures. Thus, it was surmised that stressors lead to the activation of clavate cells and to secondary bacterial infection which presented as skin lesions and mortalities.

Some of the stress factors are summarised below:

Fish were in their upstream migration (not eating & stressed leads to increased cortisol and then immunosuppression) and they were exposed to rocky/uneven surfaces during the capture process.

Fish were held under higher than normal stocking densities during holding and transport - suspect water fouling, increased likelihood of trauma, concentration of pathogenic organisms, facilitates rapid spread of pathogens.

Water from the turbine, which is a few degrees higher than that of the stream, was added to the holding tank.

Fish were held under higher than normal stocking densities during transport - suspect water fouling and increased likelihood of trauma.

Upon arrival, fish bags were noted to be deflated - suspect oxygen insufficiency and Chronic hypoxia can also cause increased cortisol levels in fish.

Bags were opened straight away and floated in the new tanks at the facility initially - suspect carbon dioxide may evolve leading to rising pH levels and ammonia/ammonium will shift towards FAN/unionised toxic form.

Fish were checked too often (every 3-4 hours) and this is likely stressful for them.

Aquaria at the facilities were not cycled sufficiently to handle the biomass (TAN rose to 1mg/L and nitrite to 0.5mg/L - these were the trigger points to conduct partial water changes).

It is uncertain if any one of these factors would have been the sole cause, however, the totality of factors may have contributed to the morbidity.

Another note is that the local water supply has a general hardness of ~400 mg/L (~800  $\mu$ S/cm) and a tetracycline dose rate of 20 mg/L is considered insufficient as the medication would be chelated.

Gross anatomy pictures courtesy of Neuroecology and Behaviour, UWA.

**AQUATIC VETERINARY ABSTRACTS****Topic: Trout Skin Diseases**Compiled by **Dr David Scarfe****Differential characterization of emerging skin diseases of rainbow trout – a standardized approach to capturing disease characteristics and development of case definitions.**

Oidtmann B, Lapatra SE, Verner-Jeffreys D, Pond M, Peeler EJ, Noguera PA, Bruno DW, St-Hilaire S, Schubiger CB, Snekvik K, Crumlish M, Green DM, Metselaar M, Rodger H, Schmidt-Posthaus H, Galeotti M, Feist SW. *J. Fish Dis.*, 36(11): 921- 37. (2013).

**Abstract**

Farmed and wild salmonids are affected by a variety of skin conditions, some of which have significant economic and welfare implications. In many cases, the causes are not well understood, and one example is cold water strawberry disease of rainbow trout, also called red mark syndrome, which has been recorded in the UK since 2003.

To date, there are no internationally agreed methods for describing these conditions, which has caused confusion for farmers and health professionals, who are often unclear as to whether they are dealing with a new or a previously described condition. This has resulted, inevitably, in delays to both accurate diagnosis and effective treatment regimes.

Here, we provide a standardized methodology for the description of skin conditions of rainbow trout of uncertain aetiology. We demonstrate how the approach can be used to develop case definitions, using coldwater strawberry disease as an example.

**Acute dermatitis in farmed trout: An emerging disease**

Peeler EJ, D Ryder, MA Thrush, J Mewett, J Hulland & SW Feist.

*J. Fish Dis.*, 37(12): 1021-1029. (2014).

**Abstract**

A new skin condition, known as puffy skin disease (PSD), emerged in farmed rainbow trout *Oncorhynchus mykiss* (Walbaum) in 2002. The number of new cases increased considerably from 2006.

Clinical signs include white or grey skin patches, which become raised and red with excessive mucous production and scale loss. Fish are inappetant and lose condition. Histologically, the key feature is epithelial hyperplasia. We undertook a questionnaire study of trout farmers in England and Wales to investigate prevalence and risk factors. PSD was reported on 37% (n = 49) of rainbow trout sites, located in 28 river catchments. The increase in cases from 2006 onwards

was mirrored by the increase in red mark syndrome (RMS). Prevalence and severity of PSD were highest in the summer months. The presence of PSD was associated with RMS (OR = 9.7, P < 0.001).

Sites receiving live rainbow trout in the previous 12 months were considerably more likely to have PSD (OR = 5.3. P < 0.01), which suggests an infectious aetiology. The size of affected fish and prevalence varied between farms, indicating that farm-level factors are important. Future research should further investigate the aetiology of PSD and practices to manage the disease.

**Puffy skin disease (PSD) in rainbow trout: a case definition.**

Maddocks CE, ET Nolan, SW Feist, M Crumlish, RH Richards & CF Williams.

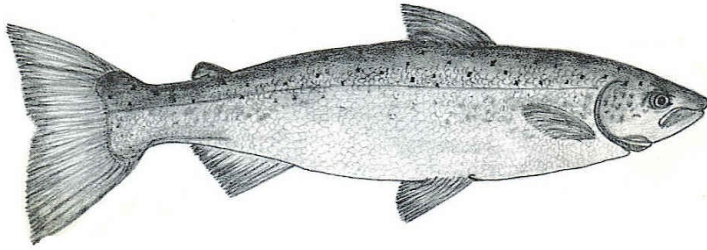
*J. Fish Dis.*, 38(7): 653 - 664. (2015).

**Abstract**

Puffy skin disease (PSD) is a disease that causes skin pathology in rainbow trout, *Oncorhynchus mykiss* (Walbaum). Incidence of PSD in UK fish farms and fisheries has increased sharply in the last decade, with growing concern from both industry sectors. This paper provides the first comprehensive case definition of PSD, combining clinical and pathological observations of diseased rainbow trout from both fish farms and fisheries. The defining features of PSD, as summarized in the case definition, were focal lateral flank skin lesions that appeared as cutaneous swelling with pigment loss and petechiae. These were associated with lethargy, poor body condition, inappetance and low level mortality. Epidermal hyperplasia and spongiosis, oedema of the dermis stratum spongiosum and a mild diffuse inflammatory cellularity were typical in histopathology of skin. A specific pathogen or aetiology was not identified. Prevalence and severity of skin lesions was greatest during late summer and autumn, with the highest prevalence being 95%. Atypical lesions seen in winter and spring were suggestive of clinical resolution. PSD holds important implications for both trout aquaculture and still water trout fisheries. This case definition will aid future diagnosis, help avoid confusion with other skin conditions and promote prompt and consistent reporting.



## Know Your Fishes



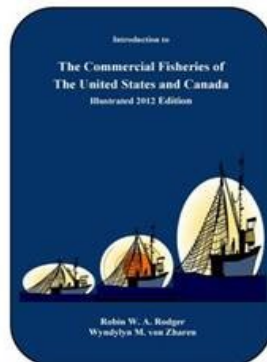
**Atlantic salmon (*Salmo salar*)** are native to rivers of North America from New England to Ungava Bay; and in Europe, from northern Spain to Russia and Iceland. However, they are now most abundant in river systems in Newfoundland and Labrador, the Gulf of St. Lawrence and northern Europe. The commercial salmon fishery is presently closed in North America, following closures in Labrador in 1998 and in New Brunswick, Nova Scotia and Newfoundland proper in 1972. Atlantic salmon was declared endangered in the US in 2000 and in 2003 in Canada (Bay of Fundy).

Since its decline, it has become a major aquaculture industry that is, somewhat surprisingly, much larger on the West Coast of North America. Apart from those that are naturally landlocked (sebago or ouananiche salmon), the Atlantic salmon is a classic anadromous fish, migrating from the sea to its native stream to spawn.

For many years, it was not known where the salmon went while at sea; however, a common feeding ground was found off the west coast of Greenland in the 1950s. Some salmon stocks from both Europe and North America migrate to this area to feed, primarily on shrimp. The Atlantic salmon is a member of the Salmonidae family.

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## Life Cycle

**General:** Salmon spawning occurs in the fall. The female digs a nest (redd) and will lay several thousand eggs, which the male will immediately fertilize. Most Atlantic salmon will survive spawning (survivors are known as “slinks,” “kelts” or “black salmon,”) and will rest for several weeks, or remain in fresh water over the winter before migrating back to sea. The eggs remain buried in the sand or gravel of the riverbed to develop over the winter period. In the spring, the newly hatched fish (alevins) eventually emerge from the gravel as fingerlings (fry). In a few months, they reach a length of about 2.5 inches and develop parr marks, becoming salmon parr. When parr reach a length of 5 to 6 inches, which can take one or two years depending upon location, they become silvery smolts and migrate to the sea where they grow rapidly.

**Exceptions:** Some salmon return early (one year or less) to their native rivers to spawn. Others may spend two or more years at sea. Some spawning may also occur in winter. In warmer southern waters, parr may migrate after only one year. Evidence seems to indicate that some populations stay close to their home rivers, while others may travel to feeding grounds off western Greenland. Upon returning a “one sea winter” (1SW) grilse would weigh about 5 pounds. Larger salmon are usually “multiple sea winter” (MSW) fish.

For additional information on Atlantic salmon morphology, lifecycle, landings and value (and for other species information), see the 2-page entry in the ***Commercial Fisheries of the United States and Canada***. Also keep tuned for new fisheries books coming out soon.

Excerpted from ***An Introduction to the Commercial Fisheries of the United States and Canada***, by R. Rodger and W. von Zharen. 2012. Used with permission.

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](http://www.CMPpublications.com/na_fisheries)

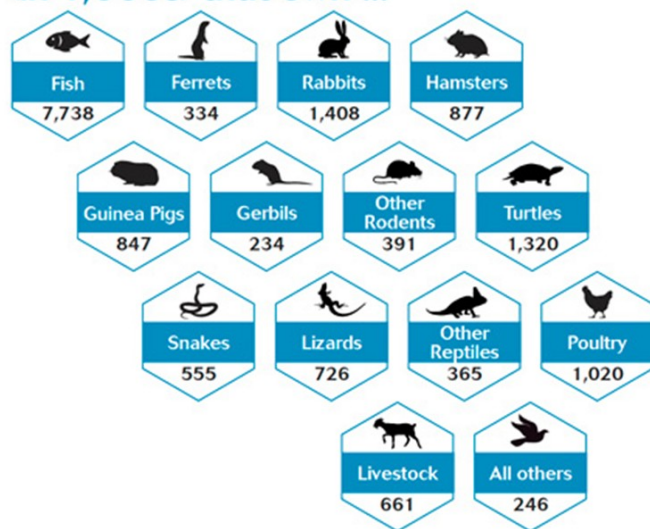
**Fish #1 in U.S. Exotic Pet Ownership Statistics**

By dvm360.com staff

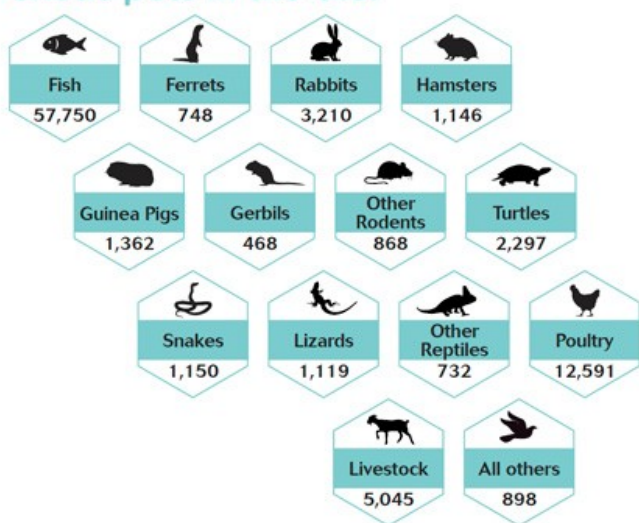
VETERINARY ECONOMICS - Apr 30, 2015

Check out the data below from the American Veterinary Medical Association, which details the numbers of exotic pets in U.S. households, and the total number of exotic pets per species.

**Number of U.S. households (in 1,000s) that own ...**



**Number (in 1,000s) of these exotic pets in the U.S.**



Source: American Veterinary Medical Association, 2012 *U.S. Pet Ownership & Demographics Sourcebook*.

<http://veterinarybusiness.dvm360.com/us-exotic-pet-ownership-statistics-may-surprise-you>

**Sometimes, it's better not to fight the fungus**

By [Elizabeth Pennisi](#)

Science| DOI: 10.1126/science.aad1786  
WASHINGTON, D.C.

Sometimes, it doesn't pay to get the immune system all worked up against an infection. Since 1998, the chytrid fungus (*Batrachochytrium dendrobatidis*) has spread to half the world's amphibians, eating away their skin, causing heart failure, and killing many of those infected. Last year, though, [researchers suggested that one solution might be to "vaccinate" frogs against this killer.](#)

But that approach could backfire, Anna Savage, an evolutionary geneticist at the University of Central Florida, Orlando, reported at the Frontiers in Phylogenetics meeting at the National Museum of Natural History. She and her colleagues study the lowland leopard frog, *Lithobates yavapaiensis*, native to the American Southwest to understand how this species persists despite periodical die-offs from fungal infection. They collected eggs from different locations, exposing some to the fungus. Then they counted the frogs' white blood cells and looked at what genes were active in the skin and spleen, matching what they found with the animals' survival over time.

To their surprise, they found that the frogs that mounted the most vigorous specific or "acquired" immune response did the worst. The fungus kills off those white blood cells, so the frog making lots of them "is like throwing gas on the fire," she reported. Thus a vaccine that stimulates this immune response "might not be a great idea," and instead, a better treatment might be to suppress the immune system, she said. She intends to look at the disease in wild populations to see whether these results hold up there as well.

**Wild toads saved from killer fungal disease**

By [Naomi Lubick](#)

Biologists have managed to rid a wild toad species of a lethal fungal disease that threatens amphibians around the world. Midwife toads on the Spanish island of Mallorca are now free of the chytrid fungus *Batrachochytrium dendrobatidis*, says Jaime Bosch, an evolutionary biologist at Spain's National Museum of Natural History in Madrid. His team reported their success in the journal *Biology Letters* on 18 November<sup>1</sup>.

Bosch and his colleagues in Spain and the United Kingdom [first set out to save isolated populations of vulnerable midwife toads on Mallorca in 2009](#). The fungus was spreading on the toads' skin, stifling their ability to breathe and manage their water balance, and ultimately killing them. See full article here:

<http://www.nature.com/news/2010/100609/pdf/465680a.pdf>

### USFWS Probes Deaths of 25 Walrus in Alaska

By **Dan Joling**, Associated Press

ANCHORAGE, Alaska — September 20, 2015

The U.S. Fish and Wildlife Service said Friday it is investigating the deaths of 25 Pacific walrus found on an isolated northwest Alaska beach. A person connected to a U.S. Air Force radar station in the remote area spotted the animals and notified the agency last week. The walrus included 12 pups, and some were missing their heads and tusks. The cause of death has not been determined, said Fish and Wildlife Service spokeswoman Andrea Medeiros, and investigators do not want to speculate.

The missing heads and tusks don't necessarily indicate illegal activity, Medeiros noted. The animals could have died in the ocean and washed ashore, she said.

U.S. regulations allow anyone to collect bones, teeth and ivory of dead marine mammals found on beaches or land within a quarter-mile of the ocean, though they must follow certain rules. Walrus skulls with tusk attached are collectors' items. The ivory often is carved and made into jewelry. However, walrus killed only for the collection of ivory is considered wasteful, and "head-hunting" is illegal.

Investigators reached the Chukchi Sea beach Thursday. Officers wanted to investigate the carcasses before they were picked apart by polar bears, gulls or other scavengers.

Walrus breed in the Bering Sea. Many walrus found in the Chukchi Sea north of the Bering Strait are females with pups that ride the edge of the sea ice north, using the ice as a moving platform to dive and rest. The animals feed on clams, sea snails and other food on the ocean bottom but cannot swim indefinitely. In recent years, sea ice has receded north beyond the shallow continental shelf to water that exceeds 2 miles (3.2 million kilometers) deep, beyond the diving range of an adult walrus.

Walrus in large numbers on shore were first spotted on the U.S. side of the Chukchi Sea in 2007. An estimated 35,000 Pacific walrus were photographed Sept. 2 near Point Lay northeast of Cape Lisburne.

Walrus have become a cause for concern as climate warming diminishes summer sea ice. Arctic sea ice hit its summer minimum last week at 1.7 million square miles, down 240,000 square miles from 2014, according to the National Snow and Ice Data Center. It's the fourth-lowest level on record for minimum summer sea ice.

Excerpted from:

<http://www.coloradoan.com/story/life/2015/09/20/feds-probe-deaths-walrus-alaska-coast/72535920/>

### Marine population halved since 1970

BBC.com News - [Science & Environment](#)

16 September 2015

Populations of marine mammals, birds, fish and reptiles have declined by 49% since 1970. The study prepared by the World Wildlife Fund and the Zoological Society of London says some species that people rely on for food are faring even worse, noting a 74% drop in the populations of tuna and mackerel. In addition to human activity such as overfishing, the report also says climate change is having an impact.

"Human activity has severely damaged the ocean by catching fish faster than they can reproduce, while also destroying their nurseries," said Marco Lamberini, head of WWF International.

The report says that sea cucumbers - seen as a luxury food throughout Asia - have seen a significant fall in numbers, with a 98% drop in the Galapagos and 94% drop in the Red Sea over the past few years. The study notes the decline of habitats - such as seagrass areas and mangrove cover - which are important for food and act as a nursery for many species.

Climate change has also played a role in the overall decline of marine populations. The report says carbon dioxide is being absorbed into the oceans, making them more acidic, damaging a number of species. The authors analysed more than 1,200 species of marine creatures in the past 45 years.

Excerpted from:

<http://www.bbc.com/news/science-environment-34265672>

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





The *Journal of Ecology* is a general plant ecology journal publishing high-impact, novel, and ground-breaking work on all aspects of the ecology of plants, fungi, and algae in terrestrial and aquatic ecosystems.

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We welcome submissions that report on important aquatic ecology work, but also address concepts of central interest to all ecologists that advance our understanding of ecological principles. We would particularly like to see submissions, including Essay Reviews, which can address one or more of the 100 fundamental ecological questions posed by [Sutherland et al. \(2013\)](#).

Important, emerging topics in aquatic ecology include:

- documenting threats to aquatic habitats due to global change, invasive species, and habitat degradation;
- determining the drivers of community and ecosystem biodiversity;
- understanding eco-evolutionary dynamics (see [Shefferson & Salguero-Gómez 2015](#)).

Read the recent [Marine Ecology Virtual Issue](#) compiled by *Journal of Ecology* Associate Editor Carol Thornber, which features some of the most exciting work published in the *Journal*.

Carol Thornber was also interviewed at the recent ESA meeting by Executive Editor David Gibson – [listen to the podcast](#) to find out more about her work and marine ecology in general.

To see Virtual Issue, go to: <http://www.journalofecology.org/view/0/marinevirtualissue.html>



### Mississippi State University Hosts Workshop on Aquatic Food Security By Stephen Reichley

Mississippi State University's Global Center for Aquatic Food Security and the International Institute recently hosted Food Security for the Future: The Role of Aquatic Animal Health, a two-day workshop. Over 50 attendees from around the world came to Starkville, Mississippi for a workshop that focused on the challenges and solutions for aquaculture in meeting the world's future needs for food security and the role of aquatic animal health to ensure a safe supply of seafood. Seafood is an important component of global food security and is the most highly traded food internationally. In many countries, fish is the most important protein source for people.

Workshop presenters represented a multidisciplinary background and included Dr. Angus Cameron, Dr. William Daniels, Dr. Stephen Feist, Dr. Jose Garcia, Dr. Olga Haenen, Dr. Larry Hanson, Dr. Terrill Hanson, Dr. Stewart Johnson, Dr. Mark Lawrence, Dr. Shivaun Leonard, Dr. Edmund Peeler, Dr. Melba Reantaso, Dr. Yngve Torgersen, and Dr. Robert Wills. Presentations covered myriad topics including diagnostics, economics, zoonotic pathogens, epidemiology and disease surveillance, and management practices. Each session was followed by in-depth discussions amongst workshop participants which facilitated idea sharing and increased research and outreach collaborations.

Dr. Mark Keenum, President of Mississippi State University, and Dr. Gregory Bohach, Vice President for Agriculture, Forestry, and Veterinary Medicine, also spoke to workshop attendees about the programs and expertise at Mississippi State University, ongoing projects within this important field, and the commitment of the university to aquatic food security. More information and presentations from the workshop can be found at [https://www.international.msstate.edu/food\\_security/fishhealth](https://www.international.msstate.edu/food_security/fishhealth).



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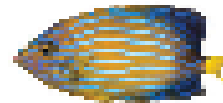
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**World Health Organization Best Practices  
for the Naming of New Human Infectious Diseases**  
May 2015

The World Health Organization (WHO), in consultation and collaboration with the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization of the United Nations (FAO), has identified best practices for the naming of new human diseases, with the aim to minimize unnecessary negative impact of disease names on trade, travel, tourism or animal welfare, and avoid causing offence to any cultural, social, national, regional, professional or ethnic groups.

Given the increasingly rapid and global communication through social media and other electronic means, it is important that an appropriate disease name is assigned by those who first report a new human disease. WHO strongly encourage scientists, national authorities, the national and international media and other stakeholders to follow the best practices set out in this document when naming a human disease. If an inappropriate name is released or used or if a disease remains unnamed, WHO, the agency responsible for global public health events, may issue an interim name for the diseases and recommend its use, so that inappropriate names do not become established.

The name assigned to a new human disease by WHO or other parties following the present best practices may or may not be confirmed by the International Classification of Diseases (ICD1) at a later stage. The ICD, managed by WHO and endorsed by its Member States, provides a final standard name for each human disease according to standard guidelines that are also aimed at reducing negative impact from names while balancing science, communication, and policy. Thus, the best practices are not intended to replace or interfere with the existing ICD system, but span the gap between identification of a new human disease event and assigning of a final name by ICD. Further, WHO recognizes that existing international systems and bodies are responsible for taxonomy and nomenclature of pathogens, which are not directly affected by these best practices.

1 <http://www.who.int/classifications/icd/e>

See the full report here:

[http://apps.who.int/iris/bitstream/10665/163636/1/WHO\\_HSE\\_FOS\\_15.1\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/163636/1/WHO_HSE_FOS_15.1_eng.pdf?ua=1)

**FDA approves GM salmon**

By [ANDREW POLLACK](#)

The FDA has approved AquaBounty Technologies' AquAdvantage salmon for human consumption, saying it found "no biologically relevant differences in the nutritional profile" of the genetically modified fish, compared with traditional farm-raised Atlantic salmon. The fish are modified to grow twice as fast, and they will be bred to be sterile females, indicating there should be no effect on wild populations, according to AquaBounty.

The approval by the [Food and Drug Administration](#) caps a long struggle for AquaBounty Technologies, a small company that first approached the F.D.A. about approval in the 1990s. The agency made its initial determination that the fish would be safe to eat and for the environment more than five years ago.

The approval of the salmon has been fiercely opposed by some consumer and environmental groups, which have argued that the safety studies were inadequate and that wild salmon populations might be affected if the engineered fish were to escape into the oceans and rivers.

The AquAdvantage salmon, as it is known, is an Atlantic salmon that has been genetically modified so that it grows to market size faster than a non-engineered farmed salmon, in as little as half the time.

The AquAdvantage salmon contains a growth hormone gene from the Chinook salmon and a genetic switch from the ocean pout, an eel-like creature, that keeps the transplanted gene continuously active, whereas the salmon's own growth hormone gene is active only parts of the year. The company has said the fish can grow to market weight in 18 to 20 months, compared with 28 to 36 months for conventionally farmed salmon.

AquaBounty, which is based in Maynard, Mass., has long struggled to raise enough money to stay in business. It is now about 60 percent owned by Intrexon, a company started by the biotechnology entrepreneur Randal J. Kirk to pursue synthetic biology, a term for sophisticated genetic engineering.

See the full article: [The New York Times](#)

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**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. Vet-TechLife 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 state-rooms 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](#).



**Diseases in Tropical Aquatic Animals Course  
January 11-23, 2016**

James Cook University  
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For more information go to [http://www-public.jcu.edu.au/events/shortcourses/JCU\\_146956](http://www-public.jcu.edu.au/events/shortcourses/JCU_146956), download the course brochure from <http://tinyurl.com/ns849mb>, or contact [Ellen.Ariel@jcu.edu.au](mailto:Ellen.Ariel@jcu.edu.au).

**Aquaculture 2016  
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Paris Hotel and Convention Center  
Las Vegas, Nevada USA

Every three years, the Triennial is held somewhere in the United States. In 2016, the Triennial returns to the exciting city of Las Vegas, Nevada! The Triennial is the largest aquaculture conference and tradeshow held in the world with nearly 4000 attendees from over 90 countries and even more countries are expected to have attendees at AQUACULTURE 2016. The Triennial combines the annual meetings of the World Aquaculture Society, National Shellfisheries Association, Fish Culture Section of the American Fisheries Society, and the National Aquaculture Association.

For more information, go to: [http://marevent.com/2016\\_Aquaculture\\_LASVEGAS/AQ2016RegBro.pdf](http://marevent.com/2016_Aquaculture_LASVEGAS/AQ2016RegBro.pdf)



**The Amphibian Conservation Research Symposium**

**January 18-20, 2016**

North-West University  
Potchefstroom, South Africa

The Amphibian Conservation Research Symposium (ACRS) is the only international symposium dedicated specifically to the sharing of research and strategies to empower the future of amphibian conservation. ACRS brings together amphibian conservationists and researchers from around the world to gain experience, learn new ideas and make contacts. With a strong focus on early career conservation and research practitioners, we are helping to build a future for global amphibian conservation efforts. ACRS 2016 will be held at North-West University in Potchefstroom, South Africa from January 18th to 20th.

On January 21st you are invited to participate in the "ACRS 2016 Workshop: Identifying conservation research needs for Southern African amphibians." This workshop will help identify proactive avenues of research for conservation of southern African amphibians, along with potential threats and opportunities that are currently poorly recognized. This workshop is free for all delegates to attend but you must arrange your own lunch and dinner.

Alternatively on January 21st you can visit the local Vredefort Dome UNESCO World Heritage Site where there will be a guided walk around the meteorite crater in the morning, followed by a picnic lunch and then white water rafting in the afternoon (\$40 USD all inclusive).

On January 22nd there will be a day trip to Pilanesberg National Park. This trip will include transport to and from the park, the entrance fee, a packed breakfast and a buffet lunch at one of the lodges (total cost of \$80 USD).

We are pleased to offer discounted rates for students:

\$70 USD: Two day ACRS 2016 Student Registration

\$40 USD: Single day ACRS 2016 Student Registration

Standard registration rates are as follows:

\$100 USD: Two day ACRS 2016 Student Registration

\$60 USD: Single day ACRS 2016 Student Registration

Registration closes on December 18th.

Click [here](#) to register today.

Thank you everyone and we look forward to seeing you there!

ACRS Executive Committee



Potchefstroom, South Africa, 18th - 21st January 2016

**Fish Veterinary Society**

**22-23 March 2016**

Norton House Hotel  
Edinburgh, Scotland

We are delighted to let you know that the FVS meeting will be held on the **22<sup>nd</sup> to 23<sup>rd</sup> of March 2016 at the Norton house hotel, Edinburgh**. We have held a few rooms at this hotel under the reference 'fish vet society meeting'.

We have themed this year's meeting as **Recirculation aquaculture systems**. We have already secured some speakers who will be talking on the **'the rise and fall of RAS'**, **'water chemistry'** and **'how to keep bacteria under control'**. We would however be delighted to hear from you, as a member, what topics you would like to see discussed or if you have any speakers you would like to propose.

We are working on the online registrations which I will announce once it has been set up.

We would be delighted to see you all in March.

Matthijs Metselaar DVM PhD MRCVS MIFM

**FVS VICE PRESIDENT,  
ACTING SECRETARY  
VETERINARY SURGEON**

TEL. +44 (0) 7799691422

WEB. [www.fishvetsociety.org.uk](http://www.fishvetsociety.org.uk)

EMAIL. [secretary@fish-vet-society.org.uk](mailto:secretary@fish-vet-society.org.uk)



## 2ND CONFERENCE OF FISH IMMUNOLOGY

**June 26th – 30th, 2016**

Holiday Inn, Bay  
Portland, Maine

Latest and most important findings on the immunology of aquatic organisms will be shared with the most relevant researchers of the field, at this scientific congress of the International Society of Fish & Shellfish Immunology.

The conference will consist of plenary lectures, and oral and poster presentations covering a wide range of topics, including immunology, molecular biology and microbiology. Participation of undergraduate and postgraduate students and young researchers is encouraged. CLICK HERE to register.

## MSc in Aquatic Production and Veterinary Health

Dear WAVMA Members,

I would like to notify you of a new MSc in Aquatic Production and Veterinary Health run by City University of Hong Kong's School of Veterinary Medicine and the University of Stirling's Institute of Aquaculture in Scotland. The degree will be taught in Hong Kong full time and signifies an important step in training our next generation of aquaculture veterinarians and professionals in the region. Non-veterinarians may also apply!

The first cohort of students will begin in September 2016. Information is available on the City University Website:

<http://www6.cityu.edu.hk/svm/en/Programmes/MSAPVH/Introduction/index.html>

More information will be forthcoming. For any enquires please refer to the website or email: [svmenquiry@cityu.edu.hk](mailto:svmenquiry@cityu.edu.hk)

Thanks!

Dr. Howard Wong  
Executive Director,  
School of Veterinary Medicine  
City University of Hong Kong  
5/F, Block 1, To Yuen Building,  
31 To Yuen Street,  
Kowloon, Hong Kong  
Tel: (852) 3442 9008  
Mobile: (852) 6653 6070  
Fax: (852) 3442 0589

## AQUAVET® Alumni!

**May 20-21, 2016**

Virginia Beach, VA

### 40 YEARS !

2016 is our 40th year of aquatic veterinary medicine education!

We are planning a celebration and seminar on May 20<sup>th</sup> and 21<sup>st</sup> in connection with the 2016 IAAAM conference in Virginia Beach, VA.

IAAAM is planned for Sunday, May 22nd to Friday, May 27th. The icebreaker would be Saturday night, May 21st. Based on this we plan to have our conference Saturday, May 21st and the anniversary dinner on Friday night, May 20th. IAAAM will likely also have the wet labs after the conference this year, so you can do both things (AQUAVET® and IAAAM web labs). You'll be able to rent a hotel room for just Friday night for AQUAVET or rent it as part of the block for IAAAM.

I hope to also have this information on our webpage, which is part of the Cornell site.

[www.aquavet.info](http://www.aquavet.info)

For more information and to keep in touch, please send your email and other updated contact information to [aquavetmail@gmail.com](mailto:aquavetmail@gmail.com).

Donald W. Stremme, V.M.D.

[aquavetmail@gmail.com](mailto:aquavetmail@gmail.com)

P.S.—Spread the word to your classmates, since it's likely I don't have emails for many of them!



## World Veterinary Congress to be an Annual Event

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

**AAFV 3rd Annual Conference**

**April 10, 2016**

North Carolina Aquarium at Pine Knoll Shores  
Pine Knoll Shores, North Carolina

Meeting Precedes (but unaffiliated with) Eastern Fish Health Workshop.

Clinically relevant fish-only continuing education.

<http://www.fishvets.org/pages/category.asp?id=26>



**41st Annual Eastern Fish Health Workshop**

**April 11 - 15, 2016**

DoubleTree by Hilton  
Atlantic Beach, North Carolina, USA

Join us at North Carolina's Crystal Coast on Atlantic Beach for the 41st Annual Eastern Fish Health Workshop. Please use the following email address for submission of title forms, registration, abstracts, Power Points, and any questions: [TheEFHW@gmail.com](mailto:TheEFHW@gmail.com)

The meeting will consist of scientific presentations as well as a 1-day CE workshop.

For additional information, check out:

<https://www.facebook.com/pages/Eastern-Fish-Health-Workshop/164449723610923>



**The 2016 North Florida Marine Science Symposium**

**January 28-29, 2016**

Cedar Key, Florida

UF Whitney Laboratory for Marine Bioscience

[REGISTER HERE](#)

<http://reg.conferences.dce.ufl.edu/Basic/1400043985>

*Golden Head Arowana—photo by Nick Saint-Erne*





# EXOTICS CON

BUILDING EXOTICS EXCELLENCE: ONE CITY, ONE CONFERENCE  
August 27-September 1, 2016 • Portland, Oregon



## ExoticsCon

**August 27 - Sept 1, 2016**

Portland, Oregon, USA

### Submit a Proposal

Instructors, now's the time to submit your proposal! **DEADLINE: January 17**

Proposals will be considered for the following presentation types:

- Concurrent Session (15 - 20 Minutes)
- Master Class (60 Minutes)
- Master Class (120 Minutes)
- Lab (2 hour) • Lab (4 hour)
- Posters

[CLICK TO SUBMIT YOUR PROPOSAL HERE](#)

## THE 41st ANNUAL MEETING OF THE WESTERN DIVISION OF THE AMERICAN FISHERIES SOCIETY

**21-24 March 2016**

Grand Sierra Resort  
2500 E 2nd St, Reno, NV 89502

### **"FISHERIES, SOCIETY, AND THE SCIENTIFIC METHOD: CHALLENGING OUR PERCEPTION OF SCIENCE, POLICY, AND MANAGEMENT"**

Over 200 presentations on fisheries and aquatic resource issues

Information: <http://wd2016.fisheries.org/>



*In Collaboration with  
the California-Nevada  
Chapter of the AFS*

## Project Piaba

**Buy a Fish, Save a Tree!**

**January 23 – February 5, 2016**

Rio Negro  
Manaus, Brazil



### Arrival to Manaus, Brazil --

Most of the group will rendezvous in Miami (USA) for the overnight flight to Manaus (Brazil). We will be greeted there by Amazonia Expeditions staff. There will be a chartered bus to take us directly to our boat, We may have to wait for trip participants arriving from other countries. Then the boat will proceed upriver from Manaus to Daracua on the Rio Negro.

Expedition Cost: \$2,500 per person, double occupancy. The trip cost includes:

- 2 weeks on a well-appointed live-aboard boat (air conditioned, private in-room bathrooms)
- Visit Biological Hotspots in the Amazon Basin
- Visit Fishing Communities on the Rio Negro
- Observe the Ornamental Fish Festival of Barcelos
- Visit ornamental fish collection & export facilities
- All meals, mineral water, juices, coffee, are included



### Other considerations before you travel

Be sure that your passport is up to date

- Residents of the US need a Brazil Tourist Visa (ask for a pdf of the application for contact info in Brazil)
- We have a pdf with the information for you to fill out the application; contact us if you need that information.
- We suggest you see your doctor or travel clinic for up to date immunizations and health resources for this area

Scott Dowd  
Project Piaba Executive Director  
c/o New England Aquarium  
[sdowd@neaq.org](mailto:sdowd@neaq.org)

Web: [www.projectpiaba.org](http://www.projectpiaba.org)

Social: <https://www.facebook.com/pages/Project-Piaba/332179033504804>

**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 provide 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.



**Veterinary Medical Officer**

Smithsonian Institution (National Zoological Park)  
Washington, DC USA  
Job Number: 16DH-LG-300882-DEU-NZP

**SALARY RANGE:** \$90,823.00 to \$118,069.00 / Per Year

**OPEN PERIOD:** Wednesday, November 4, 2015 to Friday, December 4, 2015

**SERIES & GRADE:** GS-0701-13

**POSITION INFORMATION:** Full-Time, Permanent - Federal

**DUTY LOCATIONS:** Washington DC

**WHO MAY APPLY:** This position is open to all U.S. Citizens or U.S. Nationals.

**JOB SUMMARY:** This position is located in the National Zoological Park (NZP). The employee independently and collaboratively conduct complete gross necropsies and histopathologic examinations on all species of animals (invertebrates, mammals, reptiles, fish, birds etc.) originating from the Zoo's collection or wildlife on zoo grounds to identify and evaluate significant disease or health trends.

**DUTIES:**

- Conducts complete gross necropsies and histopathologic examinations on all species of animals.
- Coordinates routine activities of the zoo necropsy service through scheduling, supervises prosecutors during necropsies, assures timely reporting of necropsy and biopsy results, participates in after hours and weekend emergency call.
- Scholarly pursuits including peer reviewed scientific publications, independent and collaborative research, grant writing / application, presentations, and participation in professional organizations.
- Conducts and participates in in-house seminars and routine information sessions, (e.g., Keeper Pathology rounds, Clinical rounds, animal management meetings), and attends professional conferences where appropriate.
- Participates in the outreach, educational, and fundraising projects and events of the zoo and Smithsonian.
- Assists with the maintenance and disposition of pathology records, digital records, slides, tissues, photographs and materials generated from the clinical or anatomical pathology laboratories.  
Mentors post graduate veterinarians, residents, and veterinary students

For more details and to apply, go to:

<https://www.usajobs.gov/GetJob/ViewDetails/420698800>

**Veterinarian Position Available**

Cayman Turtle Farm, Grand Cayman,  
George Town, Cayman Islands, West Indies

Cayman Turtle Farm affords an excellent opportunity for people to gain experience in our exciting tourism industry. This facility offers a chance for the right individual to work in one of Cayman's leading attractions among locals and tourists. We are offering a competitive compensation and benefits package, which includes 20 days of vacation, 50% contribution to health insurance and a pension plan. Remuneration will be commensurate with qualifications and experience, and will be in the range of CI\$58,313/US\$69,420.23 to CI\$64,372/US\$76,633.33 per annum. Responsible for fulfilling the role of designated veterinarian for Cayman Turtle Farm (CTF), with particular emphasis on aquatic animal, avian, wildlife, & zoological medicine.

**Responsibilities:**

- Participate in the daily activities of the medical service of the park, including primary case responsibility and regular case rounds with park staff and/or St. Matthews University, School of Veterinary Medicine (SMU SVM) faculty and community veterinarians
- Act as Bosun-on-watch (Manager on duty) according to a schedule devised by the Cayman Turtle Farm
- Report to the Park's Chief Research Officer (CRO), and liaise with the Curator of the Terrestrial and Education Exhibits Unit and the Lead Aquarist, to establish and maintain protocols for the proper husbandry and care of the animals
- Work with the Lead Aquarist and CRO to establish and maintain optimal water quality parameters for the health of the park animals and guests
- Determine medication regimes, treatment methods, feeding, and other protocols as necessary and desirable for optimum animal welfare and husbandry
- Administer supplements, medications and treatment protocols. Train other Crew Members in administering medications, treating animals, and feeding protocols
- Conduct frequent observations of animals and report any abnormalities, health or welfare issues, or change of behaviour to CRO

To express your interest in this role, please submit a curriculum vitae, references, and cover letter by December 15, 2015 to:

The Manager, Human Resources  
Cayman Turtle Farm (1983) Limited  
P.O. Box 812  
Grand Cayman, Cayman Islands KY1-1303  
Or email: [careers@TURTLE.KY](mailto:careers@TURTLE.KY)

**Combined Anatomic Pathology Residency and PhD, with Aquatic Animal Emphasis**

University of Georgia  
Athens, GA USA

The Department of Pathology, College of Veterinary Medicine, The University of Georgia (<http://www.vet.uga.edu/vpp>) in conjunction with the Georgia Aquarium has an opening for residency training in anatomic pathology with aquatic animal emphasis beginning July 1, 2016.

The incoming resident will join a team of 9 residents and a diverse faculty, including 1 certified fish pathologist and 19 ACVP diplomates, with expertise in domestic, aquatic, avian, exotic, wildlife, toxicologic and laboratory animal pathology. This intensive, comprehensive, 5-year training program is designed to meet the eligibility requirements for board certification by the American College of Veterinary Pathologists and meets most requirements for Fish Pathologist certification by the American Fisheries Society. Aquatic pathology experience is focused on the extensive collection of freshwater and marine fishes at the Georgia Aquarium, and includes work conducted both at UGA and on-site in Atlanta.

Exposure to invertebrates, amphibians, turtles, aquatic birds, and marine mammals occurs periodically. Residency training is augmented by necropsy experience in conjunction with the AAVLD-accredited Athens Veterinary Diagnostic Laboratory, surgical biopsy service to the teaching hospital and out-of-state veterinary practices, and a large Zoo, Exotic and Avian Pathology Service. Case-based learning is supplemented with several courses in histopathology, general pathology, and specialty areas (e.g., fish pathology). Additional fisheries related coursework is strongly encouraged. Graduate training utilizes modern scientific methodology and encourages independent thought, with an emphasis on hypothesis-driven applied or basic research in an area of aquatic animal disease, as well as the development of oral and written communication skills. Teaching in the professional curriculum, participation in seminars, presentations at national meetings, and manuscript publication are also expected of the resident.

The starting salary is \$35,024.00 per year plus tuition support and travel support to regional and national meetings, including training courses. Applicants must possess a DVM or equivalent degree, must be United States citizens or be eligible for lawful admission to the United States, and must provide evidence of academic strength and interest in anatomic and aquatic animal pathology and research. Top candidates may be asked to participate in phone and/or in-person interviews, although any interested applicant is welcome to visit.

Applications will be accepted until April 15, 2016 for a position beginning July 1, 2016.

**Items Needed for Application**

The following residency application materials must be sent electronically to Mrs. Jennifer Kempf at [jkempf80@uga.edu](mailto:jkempf80@uga.edu): curriculum vitae, statement of professional goals, unofficial veterinary school transcripts, and three reference letters. Concurrent application to the Graduate school (including official veterinary school transcripts) for the PhD in Veterinary Pathology program must also be submitted through the Graduate school website (<http://grad.uga.edu/index.php/prospective-students/domestic-application-information/requirements/application-forms/>) in order for the residency application to be considered.

For further information contact Dr. Elizabeth Howerth, Department of Pathology, College of Veterinary Medicine, The University of Georgia, Athens, GA 30602-7388, phone: (706) 542-5833, FAX: (706) 542-5828, or E-mail: [howerth@uga.edu](mailto:howerth@uga.edu).

The University of Georgia is located in Athens, a vibrant community of 100,000 located in the wooded Piedmont hills of northeast Georgia. Offering the amenities of a cosmopolitan city, the surrounding area also offers a wide variety of lifestyle choices. Athens is located 1½ hours from Atlanta, two hours from the Appalachian Trail, and four hours from the Atlantic coast. The University of Georgia is an EEO/AA employer.

**Aquatic Veterinary Scientific Assistant Position**

Washington State University, College of Veterinary Medicine, WA Animal Disease Diagnostic Lab (WADDL), Pullman, WA, USA

Position Number: 122379

Position: Temporary, 12 months

Monthly Salary: \$4,583.33

Open Date: Review of applications is currently underway and will continue until the position is filled

**Summary of Duties**

This position serves as a professional for the Washington Animal Disease Diagnostic Laboratory (WADDL) working cooperatively with the U.S. Fish and Wildlife Service Pacific Region Olympia Fish Health Center to protect fish health on federal and partner fish hatcheries: prevents disease outbreaks by working through hatchery staff to improve husbandry methods and biosecurity; assists USFWS in conducting fish health inspections required by USFWS policy, state laws, co-manager agreements, and other regional policies. Primary duties include the oversight, collection, and submission of tissue samples for health testing, and coordinating diagnostic cases between federal hatcheries and the Olympia Fish Health Center. While at the WADDL, primary duties will include the valida-



tion of new aquatic diagnostic assays and submitting research for peer-reviewed publication.

**Qualifications** (any combination of relevant education and experience may be substituted for the educational requirement on a year-for-year basis)

DVM and/or PhD in microbiological / biological sciences preferred.

Advanced degree in microbiological sciences or Bachelor's degree in similar discipline and equivalent experience.

Minimum of 2 years' experience in an aquatic diagnostic laboratory.

Familiarity with laboratory procedures required for official health inspection of aquatic animals.

Willing to participate in continuing education in the field of aquatic animal health.

A Bachelor's degree in an appropriate related scientific or engineering discipline and three (3) years of progressively responsible related professional research experience. A Master's degree in an appropriate related scientific or engineering discipline may be substituted for up to one year of the required work experience.

#### **Special Instructions to Applicants**

For more information and to apply online, go to <https://www.wsujobs.com/postings/22412>. Applicants must include a resume and cover letter with the online application. Application materials should clearly communicate how the applicant meets the required qualifications and additional requirements.

#### **EEO/Diversity Statement**

WASHINGTON STATE UNIVERSITY IS AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER AND EMPLOYER. Members of ethnic minorities, women, special disabled veterans, veterans of the Vietnam-era, recently separated veterans, and other protected veterans, persons of disability and/or persons age 40 and over are encouraged to apply. WSU is committed to excellence through diversity and faculty-friendly policy action, including partner accommodation and NSF ADVANCE Institutional Transformation programs (<http://www.advance.wsu.edu/>). WSU employs only U.S. citizens and lawfully authorized non-U.S. citizens. All new employees must show employment eligibility verification as required by the U.S. Citizenship and Immigration Services. WSU is committed to providing access and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request disability accommodation in the application process, contact Human Resource Services: 509-335-4521(v), Washington State TDD Relay Service: Voice Callers: 1-800-833-6384; TDD Callers: 1-800-833-6388, 509-335-1259(f), or [hrs@wsu.edu](mailto:hrs@wsu.edu).

#### **Post-Doctoral Associate Position: Fish Epidemiology and Aquaculture-Related Research**

University of Minnesota, Twin Cities, MN  
Job ID: 304974

#### **Qualifications Requirements:**

Candidates must have completed DVM and PhD degrees by start date and should be able to demonstrate some experience on fish epidemiology- and aquaculture-related research. Candidates with some background on analysis of fish- and aquaculture-data will be given preference. Strong organizational and writing skills are necessary.

#### **Duties:**

To conduct research and provide technical assistance to the PI, students, and trainees in the lab on surveillance, laboratory data analysis, and other miscellaneous problems related to fish disease epidemiology.

To collect and organize data for research activities.

To collaborate with the PI in the generation and testing of research hypotheses and data analysis, writing of papers, grants, and reports, and preparation of presentations and lectures

To attend, participate, or present at laboratory meetings, seminars, graduate and undergraduate lectures, and conferences as needed

To perform miscellaneous laboratory and office duties as assigned by the PI including, but not limited to, ordering supplies and reagents and help the PI in the organization and coordination of meetings and projects.

To maintain frequent communication with other faculty and collaborators, including, if required traveling to international destinations to meet with collaborators and collect data (potential destinations include Chile, Norway, and South East Asia).

**How to Apply:** Apply online at <http://tinyurl.com/hj49ofd>. Review of applications will begin immediately and continue until the position is filled.

Applications should include: (1) a cover letter describing research interests and fit with this position, and a possible start date, (2) a curriculum vitae.

**Background Check Information:** Any offer of employment is contingent upon the successful completion of a background check. Our presumption is that prospective employees are eligible to work here. Criminal convictions do not automatically disqualify finalists from employment.

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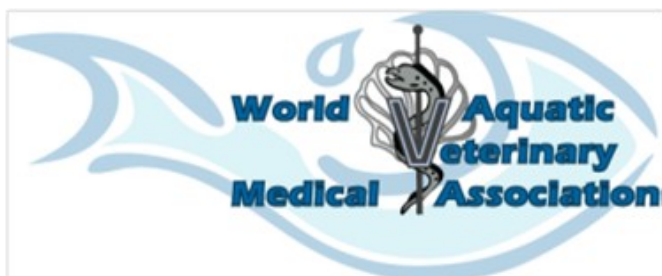
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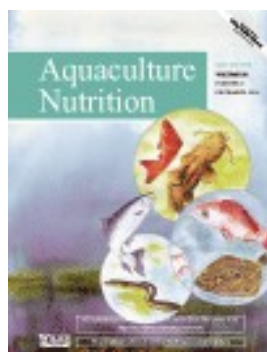
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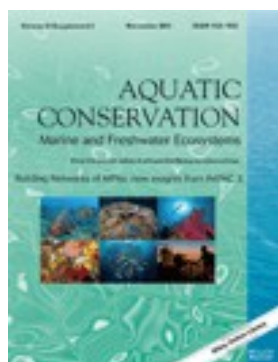
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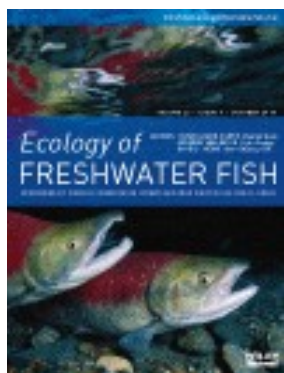
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