



*The*



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Volume 16, Number 1  
First Quarter, 2022



**Journal of the World Aquatic Veterinary Medical Association**

**WHO ARE WE**

**MISSION**

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.

**OBJECTIVES**

- A. To serve aquatic veterinary medicine practitioners by developing programs to support and promote our members, and the aquatic species and industries that they serve;
- B. To be an advocate for, develop guidance on, and promote the advancement of aquatic animal medicine within the veterinary profession and with associated industries, governments, non-governmental entities and members of the public;
- C. To develop and implement aquatic veterinary education programs, certifications and publications, including a credentialing process to recognize day-one competency in aquatic animal medicine;
- D. To foster and strengthen greater interactions among: aquatic veterinarians, related disciplines, veterinary allied and supportive groups and industries, governments and animal owners.

*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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ISSN 2329-5562



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**Cover Photo by Nick Saint-Erne:**

*Spotted turtle (Clemmys guttata) habitat at Iguanaland in Punta Gorda, Florida. See pages 22-25 for more information.*



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**Editor’s Note**

Better late than never, as the saying goes. This issue of *The Aquatic Veterinarian* is delayed in being published mostly due to lack of time on my part, but also on lack of material to include. That latter problem can be easily rectified if more WAVMA members would submit articles, case reports, or even their own stories to be included in the Colleague’s Connection report.

In this issue we once again have student reports, from the WAVAMA student chapters (pages 13-15) and from Pitts Aquatic Education Award recipients (pages 16-17). COVID had reduced the number of events students could attend these last two years, but things are starting to return to normal now.

For case reports, we have a great case that I was able to assist in at the Arizona Sonora Desert Museum and Aquarium, where CertAqV candidate, Dr. Ericka Johnson has performed experimental laser therapy on skin wounds on a Plecostomus (pages 28-29). The Plecostomus did quite well and has returned to normal after treatment.

In March, I had the opportunity to visit my friend Ty Park in Florida as he recently opened a reptile zoo called Iguanaland (pages 22-25). He has the largest number of species of Iguanas on exhibit, but unfortunately the common green iguana is prohibited in Florida (as they now are invasive there) and so there are no green iguanas at his facility. Plenty of snakes and lizards and tortoises (which I got to pet) and water turtles are there to be seen. It is a well presented herpetological experience that I highly recommend visiting.

Please send me your case reports, research articles, or other items to include in the next issue.

**Nick Saint-Erne, DVM, CertAqV**  
Executive Editor  
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*The Aquatic Veterinarian*

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## President's Report

### WAVMA Vision for 2022

Being passed the baton of President for such an organization as WAVMA is an amazing privilege. Reflecting on the goals and aspirations of the founding members and the growth and metamorphosis of this association, as a "pikkie" (small seemingly insignificant) aquatic vet located far south at the bottom of Africa, it feels a tall order for me to measure up to. We speak down here in South Africa of "Ubuntu" (I am because we are: Zulu), of "vasbyt" (hanging in there: Afrikaans), an "Indaba" (a conference or consultation: Xhosa), "lekker" (good: Afrikaans), and "Gees" (soul: Afrikaans). All these come to mind as I think ahead to my term.

I will endeavour in 2022 to serve WAVMA to my best capacity. We have a strong foundation already laid, but each year brings new challenges and highlights new areas needing attention. It is my intention to swing the spotlight on Africa during my term. We live in an immense continent filled with many wonderful people, and very much a land rich in water, and resources. However, food security is a massive issue and many people go hungry every day.

Covid has certainly not helped the situation. Africa's aquaculture potential is large but mismatched in terms of aquatic health veterinary and diagnostic capacity and support. The need for affordable diagnostics is high, the need for basic training is high - from farmers to veterinary level, and I believe WAVMA can play a pivotal role in bringing positive change in this part of the world.

I believe reaching out can only further strengthen our association, open new doors and forge new links and relationships. Pharmaceutical stewardship and education and support of para-veterinarians within the aquatic sector are two other key areas that I feel warrant attention in the near future. And then, of course, ongoing feedback and input from our members. It is our members that bring to our attention challenges out in the field, gaps that need addressing, emerging issues and the ongoing communication and support of one another is the lifeline of our organization.

As we wind up our 2021, may you all have a wonderful festive season, some feet-up time, and time with family and friends. As WAVMA EB 2022, may our "indabas" be filled with the spirit of "ubuntu", the ability to "vasbyt" through the difficult challenges and problems, be a "lekker" year for our team and association, and, most importantly, be filled with "gees".

Dr Gillian Taylor  
WAVMA President 2022  
[President@wavma.org](mailto:President@wavma.org)



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Make sure that the first page is viewed by itself. That will allow you to scroll through the issue seeing the cover page by itself first, followed by two pages side by side for the rest of the issue. Doing this, you will be able to see the Centerfold in all its ginormous glory!

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### Secretary's Report

Dear WAVMA members, as 2022 continues to unfold, it is my hope that success in all your endeavors will be realized. The world seems poised and determined to put the pandemic behind it in this year. The Board of 2022 has begun its work under the guidance of President Dr. Gillian Taylor with the main objective of providing you with the relevant member services. Your elected members would like to better serve you as we continue to broaden alliances and seek other opportunities and benefits for you. Against this background, it is important that we receive suggestions that you may have to enhance WAVMA as a whole.

Many of our members continue to renew their membership quite early and I thank those of you that have done so. Allow me to also issue a reminder that membership dues can be made securely online through your member profile, allowing you to access the member's only section of the website and receive other benefits such as the ability to communicate with other aquatic veterinarians around the world through the listserv, the quarterly *The Aquatic Veterinarian* journal (TAV), and webinars that can be used to achieve your CEPD requirements for re-licensure at considerably reduced cost. If you log into your members profile you can check whether you have paid or still owe your 2022 dues. If you have forgotten your log in details, or have any problem concerning the website, then please do not hesitate to email administrators@wavma.org to have the issue rectified.

This year continues to see more persons successfully completing the Aquatic Certification process enlarging the pool of colleagues and mentors to strengthen this initiative. I encourage other members to consider doing same. Details can be found at <http://www.wavma.org/CertAqV-Pgm>.

Students continue to be a significant percentage of our total membership. Against this background, the Education and Students Committee is an essential component of the WAVMA structure. Several initiatives have been embarked on by the committee and a dynamic report is usually submitted on a monthly basis to the board thus allowing for the voice of the students to be heard at the highest level. I therefore encourage student members that may want to get involved to email WAVMA\_Student\_Cmte-L@wavma.org.

We continue to collaborate with several international organizations such as the World Veterinary Association (WVA) and the World Small Animal Veterinary Association (WSAVA). In the case of WSAVA, we continue to have host lectures in an Aquatic stream annually giving you our members an additional avenue to obtain continuing credits in various locations around the globe. This year it will be held on 29-31 October 2022 in Lima, Peru and certainly will provide benefits to the Latin American members of our organization.



I close by thanking all the members for your continued expression of confidence in the work we do and look forward to reporting on our achievements throughout the year.

Devon Dublin, Ph.D, MSc. DMVZ, CertAqV  
WAVMA Secretary (Ag.)  
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**WAVMA Executive Board for 2022**



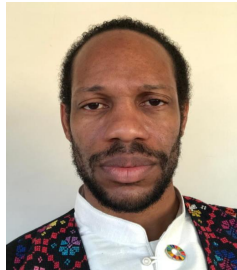
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**Executive Board Responsibilities**

The WAVMA Executive Board consists of the President, Immediate-Past President, President-Elect, Secretary, Treasurer and Directors. The Executive Board will provide oversight and approve all fiscal and administrative activities of WAVMA and its committees, programs and services in accord with the Bylaws, and facilitates the development and implementation of WAVMA programs. Individual Executive Board member's responsibilities include:

The President will: Schedule, draft agendas and preside over the Executive Board meetings; Monitor and facilitate implementation of all active WAVMA and Committee programs, services and other initiatives; serve on the Budget Committee; Provide an update of WAVMA activities for the association's quarterly publication; Work with the Meetings Committee to finalize and implement the WAVMA Annual General Meeting; Preside over the WAVMA Annual General Meeting.

The President-Elect will: Assume the President's responsibilities in the absence of the President; Serve as a member of the Budget Committee; Identify at least one new WAVMA program or initiative to implement during his/her 3-year tenure; Assist in facilitating and implementing active WAVMA programs and initiatives during his/her 3- year tenure;

The Immediate Past-President will: Assume the President's responsibilities in the absence of the President and President-Elect; Assist the President-Elect and other Board members in developing or implementing new or existing WAVMA initiatives and programs.

The Secretary will: Serve as the primary WAVMA point of contact for the public; Inform members of WAVMA programs & initiatives; Assist the developments and distribution of WAVMA official correspondence; Serve as Chair of the Communications Committee; Maintain a calendar of WAVMA events including Board and Committee meetings.

The Treasurer will: Maintain all WAVMA bank accounts and bookkeeping, receive all payments, and pay all approved expenses; Chair the Budget Committee and facilitate the development of an annual budget for the following membership year.

Directors will: Represent individual WAVMA member's general interests; Assist WAVMA in identifying and acting on issues important to specific geographical regions.

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Did you know that WAVMA's **CertAqV Program** offers members the opportunity to become recognized and certified as having competency in 9 core areas deemed necessary to practice aquatic veterinary medicine? Find out more information online at: <http://www.wavma.org/CertAqV-Pgm>.

### Join A WAVMA Committee

All of the great programs and features you get from WAVMA membership are provided by volunteers. We are always looking for more helpers, whether veterinarians, veterinary students or veterinary nurses, to join us on the committees. If you are not interested in running for office, but would like to provide your input and guide the future of WAVMA, join one of our committees (no previous experience necessary!). See a list of our committees on page 12. Contact our Secretary or the committee chair for more information about the committee and the dates of the next meeting (also done via web conference). All are Welcome!

Join a WAVMA Committee today!



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 SCHOLARSHIPS, PLEASE MAKE  
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### 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 Secretary.

#### 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: Wes Baumgartner, [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: Morag Clinton, [Secretary@wavma.org](mailto:Secretary@wavma.org)

#### 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: Matthijs Metselaar [CertAqV-Admin@wavma.org](mailto:CertAqV-Admin@wavma.org)

#### 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 members and the organization.

Chair: Chris Walster, [Administrators@WAVMA.org](mailto:Administrators@WAVMA.org)

#### Education & Student Committee

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

Chair: Bartolomeo Gorgoglione, [BartGorg@msu.edu](mailto:BartGorg@msu.edu)



### Fellows Advisory Council

A WAVMA Fellows Representative Committee (FRC) was established in October 2021, with the aim to act as a conduit of input/opinion from the members of the Fellows Council. The Committee advises and recommends actions to the Executive Board on programs within the charge of the Committee. The Committee develops criteria for awarding of the "WAVMA Distinguished Fellow" honorific, and promotes and develops WAVMA Programs that directly affect the practice of aquatic veterinary medicine, such as the WAVMA WebCEPD.

The Committee meets on a regular basis via internet conference calls. The Committee members intend to also hold in person meetings, at least annually, at the WAVMA's Annual General Meeting or other suitable locations, to do the Committee's business.

The Fellows had their most recent meeting on March 18th, where the WAVMA President, Dr. Gillian Taylor, was invited to attend as a guest. The meeting agenda, developed in conjunction with this year's Work Plan, allowed for discussion of subject matters such as the by laws revision, the Fellowship program, and increasing the income of the organization this year. Other important topics on the agenda were: i) an in person Annual Fellows Meeting – to be held in conjunction with WAVMA-AGM 2022, in South Africa, in December 2022 and, ii) planning a one day physical meeting to discuss the strategic planning of WAVMA.

My best wishes to all.

**Laura Urdes**, PhD DVM CertAqV PgDip  
Chair of the Fellows Advisory Council  
Email: [FellowsChair@wavma.org](mailto:FellowsChair@wavma.org)

<https://www.wavma.org/WAVMA-Fellows>



### WAVMA Fellows

A WAVMA Fellow is someone who has conferred on them the honorific: *WAVMA Distinguished Fellow*. The Fellows Committee (FC) is composed of WAVMA Distinguished Fellows who are current WAVMA members and who wish to contribute to the development of WAVMA.

- The Fellows Nomination Subcommittee (FNS) is a subcommittee of FC and evaluates applications for the WAVMA Distinguished Fellow and forwards a recommendation for a WAVMA Distinguished Fellow to the EB.

- The Chair of the Fellows Committee will be the Fellows Representative to the Executive Board.

Peter Merrill (2012)  
Ronald Roberts (2012)  
David Scarfe (2012)  
Julius Tepper (2012)  
Christopher Walster (2012)  
Grace Karreman (2013)  
Marian McLoughlin (2013)  
Dusan Palic (2013)  
Mohamed Faisal (2016)  
Nicholas Saint-Erne (2017)  
Richmond Loh (2018)  
Laura Urdes (2019)  
Devon Dublin (2020)  
Gregory Lewbart (2021)

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**Credentialing Committee**

The WAVMA Aquatic Veterinarian Certification Program identifies the core competency or subject matter areas needed to practice aquatic veterinary medicine, and recognizes those veterinarians who have acquired the necessary knowledge, skills and experience (KSE) from a variety of sources, in the following 9 core subject matter areas:

1. Aquatic Environment and Life Support Systems
2. Taxonomy, Anatomy and Physiology
3. Husbandry and Industries
4. Pathobiology and Epidemiology of Aquatic Animal Diseases
5. Diagnostics and Treatment of Aquatic Animal Diseases
6. Clinical Veterinary Experience and Client Communications
7. Public Health, Zoonotics and Seafood Safety
8. Legislation, Regulations, and Policies
9. Principles of Aquatic Animal Welfare

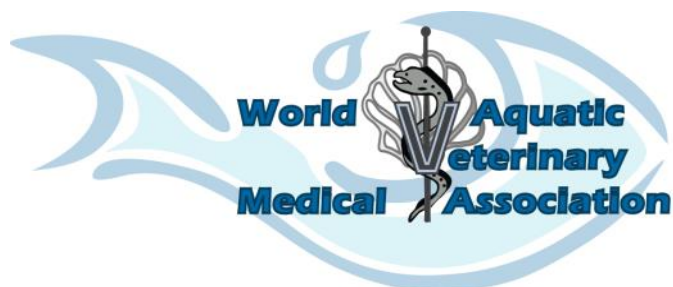
For CertAqV Program Description [Click here](#) to download, or go to [WAVMA.org/CertAqV-Pgm](http://WAVMA.org/CertAqV-Pgm).

Individuals who desire to participate in the WAVMA CertAqV Credentialing Program will first need to register and pay the US\$250 administrative fee. When registering you will select a mentor to assist and guide you through the requirements. After you have registered, you will receive an e-mail on how to download a document to record where you have obtained sufficient KSEs (knowledge, skills and experience/education) in each of the 9 modules or subject areas. You have up to 2 years to complete these.

When your mentor is satisfied you have sufficient KSE credits, he/she will request the WAVMA Credentialing Committee to evaluate these. Once the Committee and the WAVMA Executive Board have evaluated these and are satisfied you meet all requirements, you will be notified and mailed a certificate suitable for framing and display.

If you have questions about the Certification process, please send me an email.

**Dr. Matthijs Metselaar** DVM PhD CertAqV MRCVS  
Credentialing Committee Chair  
[CertAqV-Admin@wavma.org](mailto:CertAqV-Admin@wavma.org)



**Certified Aquatic Veterinarians**

Jessica Allen	USA
June Ang	Singapore
Nimrod Arad	USA
Brenda Arras	USA
Farah Gonul Aydin	Turkey
Sarah Balik	USA
Madison Barnes	St. Kitts & Nevis
Michelle Barnett	USA
Christa Barrett	USA
Heather Barron	USA
Giana Bastos-Gomes	Hong Kong
Mariah Beck	USA
Trista Becker	USA
Jenice Bell	USA
Heather Bjornebo	USA
James Bogan	USA
Pierre-Marie Boitard	France
Serena Brenner	USA
Tessa Brown	USA
Erika Brigante	St. Kitts & Nevis
Todd Cecil	USA
Bryony Chetwynd-Glover	UK
Prakan Chiarahkhongman	Thailand
Dondrae Coble	USA
Michael Corcoran	USA
Emily Cornwell	USA
Galaxia Cortes-Hinojosa	Chile
Rebecca Crawford	St. Kitts & Nevis
Rubén López Crespo	Mexico
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John Howe	USA
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Kerryn Illes	New Zealand
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Richmond Loh	Australia
Ruben Arturo Lopez Crespo	Mexico
Jordi Lopez Ramon	Spain
Amber Lum	USA
Adolf Maas	USA
Raphael Malbrue	USA
Paul Manensis	Canada
David Marancik	Grenada
Victoria Maroun	St. Kitts & Nevis
Laura Martinelli	USA
Robert Martinez	USA
Alexandra Mason	USA
Colin McDermott	USA
Alicia McLaughlin	USA
Larissa Menke	
Matthijs Metselaar	UK
Sonja Miles	UK
Tim Miller-Morgan	USA
Haitham Mohammed	Egypt
Alissa Mones	USA
Danny Morick	Israel
Lucie Nedved	Australia
Ross Neethling	UK
Jenifer Nix	USA
Sally Nofs	USA
Ladislav Novotny	Czech
Massimo Orioles Italy	
Dušan Palić	Germany
Brian Palmeiro	USA
Christine Parker-Graham	USA

Lily Parkinson	USA
Chris Payne	USA
Melanie Peel	USA
Ayanna Phillips	Trinidad & Tobago
Maximillian Polyaki	
Ashley Powell	USA
Jena Questen	USA
Eva Quijano Cardé	USA
Janis Raines	USA
Atisara Rangsichol	Thailand
Zachary Ready	USA
Aimee Reed	USA
Stephen Reichley	USA
Nuno Ribeiro	Portugal
Camille Richie	USA
Julianne Richard	USA
Patinan Rookkachard	Thailand
Komsin Sahatrakul	Singapore
Nick Saint-Erne	USA
Sonja Saksida	
Jessie Sanders	USA
Sasha Saugh	South Africa
David Scarfe	USA
Neha Shah	India
Khalid Shahin	UK
Galit Sharon	Israel
John Shelley	USA
Chris Shirkey	USA
Constance Silbernagel	USA
Melissa Singletary	USA
Esteban Soto	USA
Brandon Spolander	South Africa
Elizabeth St. Germaine	USA
Brittany Stevens	USA
Chairat Sumgorthong	Thailand
Win Surachetpong	Thailand
Tanatporn Tantiveerakul	Thailand
Gillian Taylor	South Africa
Alissa Tepedino	
Julius Tepper	USA
Sharon Tiberio	USA
Miranda Torkelson	USA
Norrapat Towanabut	Thailand
Alexandra Troiano	
Laura Urdes	Romania
Greta Van de Sompel	Belgium
Claudia Venegas	Chile
Jelena Vukcevic	
Zachary Waddington	Canada
Sarah Wahlstrom	USA
Chris Walster	UK
Scott Weber	USA
Marcus Webster	USA
Trista Welsh	USA
Michael Wenninger	USA
Peter Werkman*	Holland
David Wilbur	USA
Sarah Wilson	USA
Howard Wong	Hong Kong
Sarah Wright	USA
Taylor Yaw	USA
Irene Yen	USA

To initiate a new Student Chapter, download the [WAVMA Student Chapter Guidelines](#)

A Spanish version of the Student Chapter Guidelines can be [downloaded from the WAVMA website](#).

**PROGRAMS AVAILABLE TO STUDENT CHAPTERS:**

- Assistance in organizing and promoting Chapter programs and activities.
- Access to recorded webinars and live web-based presentations from experts around the world.
- Low annual WAVMA Student Membership (\$25) - 50% Chapter member's dues may be available to support Chapter-organized activities.
- Reduced rate (50% off) WAVMA Full Membership the year after graduation.
- John L. Pitts Aquatic Veterinary Education Awards Program
- Access to WAVMA member-only programs.
- Aquatic veterinary externship and job listings.
- WAVMA promotional flyers, brochures and other materials for distribution to other students.
- Free or discounted registration for WAVMA meetings, conferences or educational webinars.
- Participation in the WAVMA Certified Aquatic Veterinarian (CertAqV) Credentialing Program.
- Access to WAVMA e-mail listservs, including Members-L, and Student-L.

A list of all current WAVMA Student Chapters is available on the website:

<https://www.wavma.org/WAVMA-Student-Chapters>

Consider joining the [WAVMA Chapter Facebook Group](#) to find out what's happening in other Chapters.

**TO SUPPORT FUTURE STUDENT  
 SCHOLARSHIPS, PLEASE MAKE  
 A DONATION TODAY  
 TO THE SCHOLARSHIP FUND!  
[WWW.WAVMA.ORG/  
 SCHOLARSHIPS.](http://WWW.WAVMA.ORG/SCHOLARSHIPS)**

**WAVMA Student Chapters**

**University of Pretoria**, Onderstepoort [Faculty of Veterinary Science](#), South Africa (established 2017)

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

**University of Sydney**, [School of Veterinary Science](#), Australia (established 2014)

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

**Colorado State University**, [College of Veterinary Medicine & Biomedical Sciences](#), USA (est. 2019)

**Cornell University**, [College of Veterinary Medicine](#), USA (established 2019)

**Michigan State University**, [College of veterinary Medicine](#), USA (established 2021)

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

**The Ohio State University**, [College of Veterinary Medicine](#), USA (established 2018)

**Oregon State University**, [College of Veterinary Medicine](#), USA (established 2017)

**Ross University**, [School of Veterinary Medicine](#), St. Kitts & Nevis, West Indies (established 2015)

**St. George's University**, [School of Veterinary Medicine](#), Granada, West Indies (established 2018)

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

**University of California**, [Davis School of Veterinary Medicine](#), (Established 2020)

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

**University of Illinois**, [College of Veterinary Medicine](#), USA (established 2018)

**University of Pennsylvania**, [School of Veterinary Medicine](#), USA (established 2020)

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

**University of Edinburgh**, [Royal \(Dick\) School of Veterinary Studies](#), Scotland UK (established 2020)

**University of London**, [Royal Veterinary College](#), England UK (established 2021)

**New WAVMA Student Chapter**  
 St. Matthew's University

We are excited to announce the establishment of St. Matthew's University WAVMA chapter. We are in the Caribbean Islands where aquatic animals are plentiful, and our students have shown an interest in the ecosystems surrounding us. We are hoping to offer learning opportunities to our students and connect them with professionals around the world. There are exciting things ahead of us!

President: Mikayla Fahey  
 Co-president: Cerena Martyn  
 VP: Emeshe Xavier  
 Secretary: Mark Nolan  
 Treasurer: Mayako Turner  
 Fundraising Chair: Jessica Noeth  
 Public Relations: Brienna Evans

*Below: group picture of the St. Matthew's University WAVMA Student Chapter officers.*



**Murdoch University WAVMA Chapter**

We've finally reached the mid-semester study break! So, on a sunny Saturday afternoon we popped into AQWA for our much anticipated behind the scenes tour. We got to meet and feed 'Nugget'; the loggerhead turtle being prepped for release. 'Nugget' is a little cheeky and doesn't like to swim too far for food. Next, we were able to see the nursery where they were growing coral, and little baby jellyfish, sea horses and cuttlefish. We also got to feed the other sea turtle rescues; they often get caught in fishing lines, come up against predators or boat strikes. AQWA is pumping and filtering millions of litres of water per day to keep all the aquarium water in optimum condition for its inhabitants, it's an impressive facility.

Above the moving shark tunnel where visitors get to see the aquarium around them, we were able to float above the top in a glass bottom boat. Sharks, rays, turtles, and fish! So much to be seen. The enormous smooth ray and 'Crunchy' the grey nurse shark were crowd favourites. Walking around the aquarium, you can see the leafy green sea dragons, who are just about to have their babies, octopus, jellyfish, crocodiles, clown fish and all manner of creatures both local to Perth coastal waters and to other waters around Australia. It was a pleasant afternoon, and we look forward to our next event!

Our insights into aquatic medicine night had a great turn out with students eager to hear from our 3 guest speakers. First, Dr. Richmond Loh explained his origins as a pathologist in Tasmania and his journey up until now. He currently not only provides pathology services for aquariums and The Department of Fisheries and Aquaculture, but he provides training/lecturing to institutions, is a past president of WAVMA and runs the very well-known mobile service 'The Fish Vet'. A busy and integral member of the fish vet community both nationally and internationally, Dr. Richmond is aware that universities don't cover a large amount of fish content and is available to attend institutions as a guest lecturer or teacher.

Dr. Shonagh originally studied neuroscience and did her master's in marine biology. After working in a laboratory for some time, she realised she wanted to change careers and attended the University of Edinburgh to become a veterinarian. Back in Ireland, Dr. Shonagh's previous work included attending sea turtle strandings and rehabilitations. Dr Shonagh formerly worked for Ocean World Aquarium where her day to day could include anything from emergencies to preventative health care and inspections. She now lives in Australia and works for Unusual Pet Vets here in Perth.

Dr. Lucinda Lam also works for Unusual Pet Vets, a Murdoch graduate, she sees a variety of animals each week. Fish are often referred to Dr. Richmond Loh due to the logistics of transporting fish and as both her and Dr. Richmond attest, fish health issues often come back to their environment. Dr. Lucinda sees on average 1-2 fish per week. In all, a very valuable evening for those not only pursuing aquatic medicine but anyone interesting in hearing about the exciting day to day activities of veterinarians working in aquatic medicine.

Ting-Jun Foo  
 Vice President - Murdoch University WAVMA Chapter

**Student Chapter Report**  
 St. George's University

This February, WAVMA members practiced environmental conservation in our annual lionfish dive. The dive entails certification and instructions on how to protect our valuable coral reefs from invasive species. After the dive the participants are then certified lionfish hunters.

Why do we want to hunt lionfish? Our overall goal as aquatic veterinarians is to protect the health of aquatic species. In this case, we are concerned about herd health. The predatory and invasive Lionfish threaten numerous species of fish, crustacea, and cnidaria.

Lionfish come from the Indo-Pacific Oceans and are popular in aquariums, however it turns out they are very tricky escape artists. Repeated escapes and releases to the wild caused invasion into the Atlantic Ocean. As the lionfish population grows in this non-native habitat, they put stress on the coral reefs. These reefs are already struggling from climate change and pollution. Lionfish can lay up to 50,000 eggs every 3 days, and with no natural predators their population grows exponentially. As voracious feeders, they eat almost everything. Lionfish can disrupt the trophic cascade because more often they consume herbivores, which consume the algae on the coral. If there are less herbivorous fish, there is more algae on the coral, which then cannot get sunlight to grow.

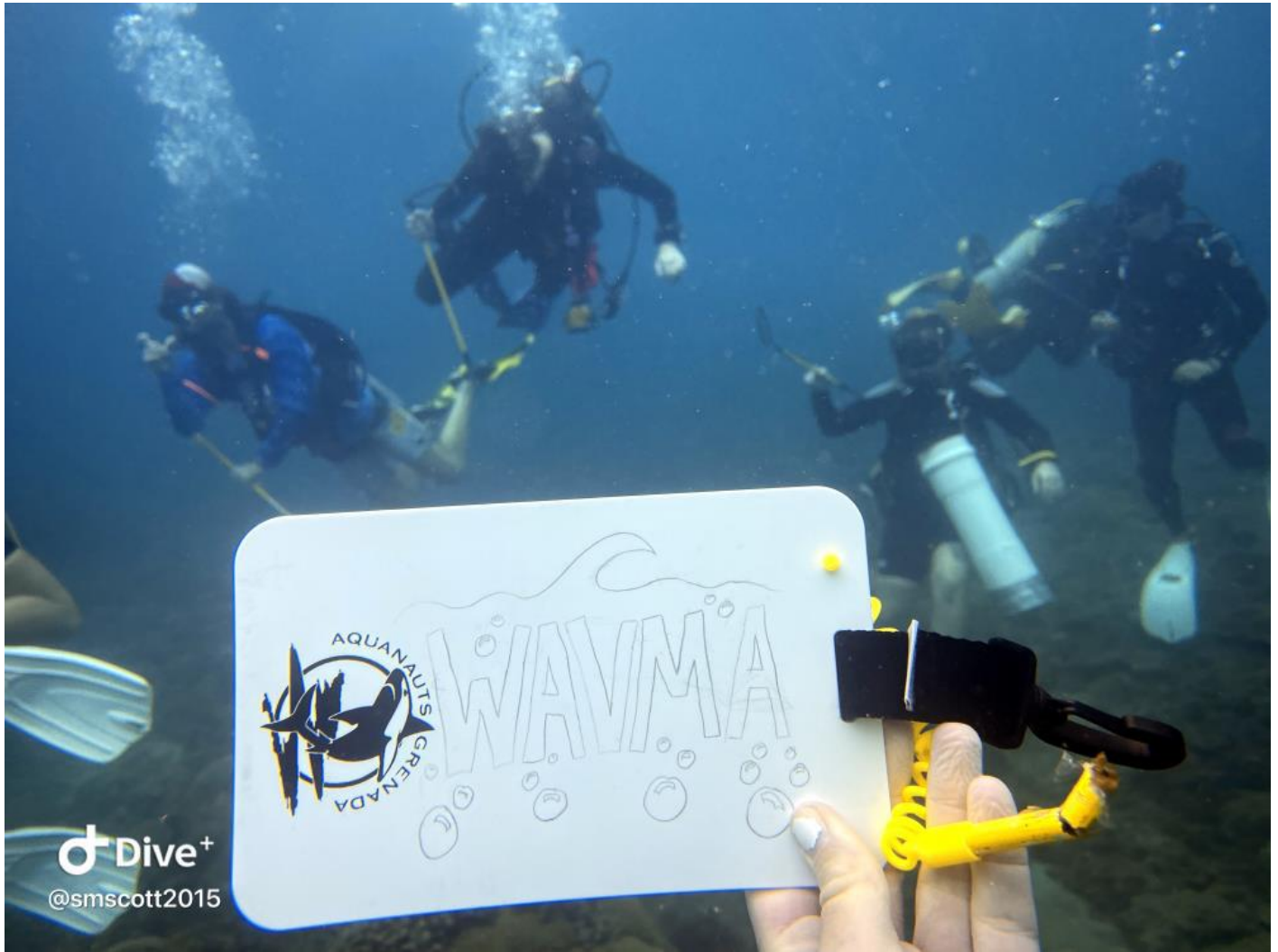
This introduces our annual lionfish dive. This season we had several SGU students become certified lionfish hunters. Students learned about the impact of lionfish on the environment. They learned how to safely handle these fish, which have numerous venomous spines. Directly after the dive students learned how to remove these spines for transporting the lionfish safely.

**Olivia Pleasanton**  
 WAVMA Student Chapter  
 Chief Communications Officer  
 School of Veterinary Medicine  
 St. George's University, Class of 2024.

Club email: [wavmasgu@gmail.com](mailto:wavmasgu@gmail.com)



References: <https://www.fisheries.noaa.gov/southeast/ecosystems/impacts-invasive-lionfish#:~:text=Lionfish%20now%20inhabit%20reefs%2C%20wrecks,Gulf%20of%20Mexico%2C%20and%20Caribbean.>



*Later, students participated in a necropsy of the lionfish.*



**John L. Pitts Aquatic Veterinary Education Award  
Kristina “Krisy” Kelley**

AQUAVET® II &  
University of Florida Tropical Aquaculture Laboratory

Dear WAVMA Scholarship Committee,

My name is Kristina “Krisy” Kelley, from midcoastal Maine; I am a fourth-year veterinary student from St. George’s University, currently attending my clinical training year at the University of Florida. I am writing to thank you all for your contribution and efforts in assisting future aquatic veterinarians like myself, through the financial support of experiences that expand their knowledge and careers, and to report back on my own personal career growth through this means.

The aquatic experiences that the World Aquatic Veterinary Medical Association John L. Pitts Aquatic Veterinary Education Award helped me financially cover were the AQUAVET II course through Cornell University, held at Roger Williams University, in Bristol, Rhode Island, and a 4-week externship at the University of Florida Tropical Aquaculture Laboratory (TAL), in Ruskin, Florida.

AQUAVET II is a course that expands on the knowledge base developed in the aquatic medicine introductory course AQUAVET I, which I attended in 2019, and focuses on improving specialized skills in aquatic pathobiology. AQUAVET II allowed me to practice my postmortem examination, sample collecting, histopathological examination of tissues, and differential diagnoses skills with various experts in their fields. The curriculum focuses on examining the pathology of economic and ecologically important production and restoration species of invertebrates, bivalves, and finfishes.

This has been very practical and vital in my growth as a future aquatic veterinarian, as herd health medicine, in the scope of production and restoration efforts, has been my career focus in recent years. I work to eventually embody the One Health movement within aquatic veterinary medicine, providing efficient, ethical health management to aquatic “herd” medicine, safe, healthy, and sustainable sources of aquatic protein to human and domestic animal populations, and increasing sustainable conservation efforts of wild populations by decreasing the demand for wild-caught overfishing efforts. This AQUAVET II class has been an academic steppingstone as I continue to strengthen and practice my veterinary management and diagnostic skills in sight of these lofty career aspirations.

The University of Florida Tropical Aquaculture Laboratory (TAL) is a facility located within the heart of the United States’ tropical ornamental fish production industry and is vital for its success. TAL is home to a diagnostic laboratory and functioning aquaculture facility run by a fantastic team consisting of manager Debbie Pouder, veterinarian Dr. Roy Yanong, their team of rotating students, and a group of dedicated biologists



*Figure 1:  
Conducting research at the Aquatic Animal Medicine  
Laboratory, St. George’s University,  
Grenada, West Indies.*

and farmworkers. Due to this combination of brilliant minds, TAL can assist aquaculture farmers with problem-solving current disease outbreaks and help them, through simulated controlled experiments, find answers to issues related to the husbandry, reproduction, and management of culturing a wide variety of tropical fish.

During my time at TAL, I was walked through much of the inner workings of the diagnostic lab and the aquaculture farm. I practiced vital aquatic medicine skills, including thorough history taking, diagnostic sample collection, systematic finfish necropsy techniques, microscopic parasite identification, water quality and system evaluation, differential diagnoses, and treatment planning. My favorite part of the externship was visiting, meeting, and working with the aquaculture clients, seeing their enthusiasm for their craft, learning from their skills, and witnessing the beauty of their products and the teamwork between them and TAL to solve any problems they might have.





The knowledge and community that these experiences provided me with are crucial foundation pieces as I continue on my career path toward aquatic production veterinary medicine. The support and financial scholarship from the World Aquatic Veterinary Medical Association are wholly and gratefully appreciated. Thanks again!

*Figure 2:  
AQUAVET 2 Class, Summer 2021, Bristol, RI.  
I'm on the front left with the awesome pants.*

*Figure 3:  
Tropical Aquaculture Laboratory  
Externship,  
Spring 2022,  
Ornamental Coral Farm Visit with  
Dr. Roy Yanong.*



### Turtle Shell Repair Wet Lab

By Zixin (Andy) Yu  
 President 2021-2022,  
 The Ohio State University  
 WAVMA Student Chapter  
 yu.2670@buckeyemail.osu.edu

This turtle shell repair wet lab took place during the spring semester 2022 at the Ohio State University College of Veterinary Medicine. It was held by The Ohio State University Student Chapter of World Aquatic Veterinary Medical Association (WAVMA) and our club faculty advisor Dr. Mark Flint. Dr. Flint has many years of experience working with sea turtles and other wildlife. Before the lab began, he gave a brief talk about the turtle anatomy and medicine as well as common shell fractures in turtles and some general techniques used in shell repair.

During the lab, students were divided into groups and each group (~3-4 students per group) was assigned with one adult red-eared slider cadaver with varying degrees of shell fractures. At the beginning, the students got to learn how to perform a physical exam on these turtles. After completing the exams and assessing the wounds and shell fractures, the students were then able to choose appropriate tools for shell fracture repair. There were different tools options to select from, such as wires, wire pliers, screwdrivers, clothing hooks, stainless rings, cable ties, epoxy and super glue.



In addition, Dr. Flint and some of our WAVMA club officers went around each group providing help and guidance on fixing complicated fractures as well as giving advice on how to improve repairing techniques.

This lab was a great hands-on learning experience for us. We are really thankful for the WAVMA Student Chapter Mini Grant opportunity from the WAVMA Education and Students Committee that made this experience possible.

WAVMA is excited to partner with Aquadocs Podcast



Looking for new and on-the-go ways to learn about aquatic medicine? Check out Aquadocs podcast hosted by Michelle Greenfield where aquatic animal health experts share their research, clinical cases, stories, and more.

Find episodes on Spotify and Apple/Google Podcasts and at [www.aquadocspodcast.com](http://www.aquadocspodcast.com)  
 Follow us on Instagram and Facebook @aquadocspodcast



### Public Comments for Fish Practice Specialty

The organizing committee for developing a Board Certification for Fish Practice through the American Board of Veterinary Practitioners (ABVP) is excited to announce that as part of the approval process the AVMA's American Board of Veterinary Specialties (ABVS) has made a call for public comments on the proposed recognition of the new specialty.

The organizing committee is made up of members from both AAFV and WAVMA and we are asking our memberships to please take the time to read the linked description and provide comments. We would also like to ask you to share the link with your clients and relevant stakeholder groups to solicit their comments as well.

To read the vision and goals of this proposed veterinary specialty, and to submit comments, go to:

<https://fishvets.us7.list-manage.com/track/click?u=0f02cfc7f16b5410b1eb10dd4&id=b0293895cf&e=5ac908f2e2>

<https://www.avma.org/education/veterinary-specialties/Call-for-comment-Proposed-recognition-of-new-specialty>

### Syndel's *Syncaine*<sup>®</sup> approved in the UK

On March 22, 2022, Syndel's tricaine methanesulfonate (MS-222) fish anesthetic *Syncaine*<sup>®</sup> received a Marketing Authorization from the United Kingdom's Veterinary Medicines Directorate (VMD).

*Syncaine*<sup>®</sup>, formally known as Tricaine-S and Aqualife TMS, is manufactured at Syndel's new US production facility. Since its initial US FDA approval in 1997, Syndel's Tricaine has become a recognized and highly regarded fish anesthetic that is widely used in the global aquaculture industry.

Founded in 1972, Syndel is dedicated to delivering fish health solutions for the Aquaculture Industry. From Syndel's head office located in Ferndale, Washington USA, Syndel manufactures and markets a portfolio of products that are specifically dedicated to fish health, nutrition, reproduction, and biosecurity. For more information, please visit [www.syndel.com](http://www.syndel.com) or contact us at [sales@syndel.com](mailto:sales@syndel.com)



**Meet Dr. Greg Lewbart**

Gregory A. Lewbart MS, VMD, Dipl. ACZM & ECZM  
 (Zoo Health Mgt)  
 Professor of Aquatic Animal Medicine  
 North Carolina State University  
 College of Veterinary Medicine  
 Raleigh, NC, USA  
 greg\_lewbart@ncsu.edu

Diplomate, American College of Zoological Medicine,  
 2000  
 Diplomate, European College of Zoological Medicine  
 (Zoo Health Management), 2017  
 WAVMA Distinguished Fellow 2021

Dr. Greg Lewbart is an author on over 175 popular and scientific articles about invertebrates, fishes, amphibians and reptiles and speaks locally, nationally and internationally on these subjects. He's also authored or co-authored 28 book chapters related to veterinary medicine of the above-mentioned taxonomic groups and edited or co-edited five veterinary textbooks: *Self Assessment Colour Review of Ornamental Fish* (Manson Publishing and ISU Press, 1998), *Self Assessment Colour Review of Ornamental Fish & Aquatic Invertebrates* (CRC Press, 2017), *Rapid Review of Exotic Animal Medicine and Husbandry* (Manson Publishing, 2008), and the multiple award winning *Invertebrate Medicine* (Wiley-Blackwell Publishing, 2006; 2012).

**INSPIRATION:**

When did you first become interested in Aquatic Veterinary Medicine (AVM)?

*In 1982 I began volunteering at the New England Aquarium in Boston while I was immersed in a MS degree program at Northeastern University. I had wanted to be a veterinarian since I was about 14 years old but my undergraduate grades weren't the greatest, especially during my freshman year, so I needed a GPA tune-up. Grad school seemed like a good option. It was about this time that I began to see the potential in aquatic animal medicine, specifically at public aquariums, even though there were no full time public aquarium veterinarians at the time.*

Who were your inspirations or instructors in AVM?

*No question here: William Medway, Don Abt, Louis Leibovitz, Richard Wolke, and Jack Gratzek. All five of these men mentored me during my veterinary school years and during my early years in the field.*

**EDUCATION:**

Where did you receive your Veterinary Degree?

*University of Pennsylvania School of Veterinary Medicine.*



Did your initial Veterinary training include Aquatic Veterinary Medicine classes?

*Yes. I participated in the 1986 AQUAVET program and took an elective fish diseases course at Penn during my junior year.*

What were your early resources (books, educational programs)?

*No question, they were books on fish diseases (none by veterinarians), magazines, and some journal articles.*

**EXPERIENCE:**

What steps led you to your present work in AVM?

*I didn't realize it at the time but the most important step I took was taking a job scooping fish for a local West Philadelphia pet store named Trade Winds. This was during my second year of veterinary school and I primarily took the job to learn about aquarium fish and their husbandry. I saw potential in ornamental fish though I had almost no experience with them as I'm not a hobbyist. While I had dreams of working with marine mammals and sea turtles (both of which I do now) they seemed so inaccessible to a veterinary student.*

*But ornamental fish were quite accessible and I was able to bring sick/dying fish to the vet school and dissect them. I worked at the pet store, part time, for a couple of years. The wholesaler who sold fish to Trade Winds heard about me and asked if I could help with some disease problems. In the spring of my senior year, without other job prospects (an NIH grant I wrote to study diseases of horseshoe crabs in Woods Hole was not funded), David O'Beirne, the owner of the wholesaler offered me a job. The opportunities this job presented launched my career.*

What kind of AVM are you involved in now (food fish, pet fish, research, teaching, government, aquaculture industry, public display aquarium, others)?

*As an academician with a teaching, research, and service appointment, I'm involved with pet fish, food fish, public aquarium display animals, teaching, research, and fieldwork. It's very rewarding.*

What were some of the interesting cases you have worked on?

*Wow, so many. In 1995 we performed what I believe to be the first published case of a successful abdominal surgery in a pet fish (pneumocystectomy in a Midas cichlid). That same year colleagues and I also published an abdominal surgery case in a gourami and in 1996 I believe we performed one of the first CT scans on a pet fish (a koi with an abdominal tumor). This case was also published. In those early years of my career we also published an imaging case using nuclear scintigraphy and a technique to surgically place prosthetic eyes in striped bass. I've also worked on some great goldfish cases with dedicated owners who love their pets.*

#### OPPORTUNITIES:

What changes have you seen in the field of AVM during your career?

*It's been amazing. When I started in 1988 I believe I was the only full-time ornamental fish veterinarian in the country. There were no formal post-graduate training programs (internships or residencies), no books (in English) written by veterinarians on fish medicine, no way to get board certified (the day two Aquatics exam for the ACZM started in 1995). I'm a charter member of both WAVMA and the AAFV. I've also attended every IAAAM conference since 1989 (2022 will make 34 in a row). While I got into the game early I'm not a true pioneer of fish medicine. In my mind that person is Jack Gratzek, followed shortly thereafter by people like Michael Stoskopf, Ruth Francis-Floyd, and Ed Noga.*

What advice do you have for veterinarians or vet students interested in AVM?

*Pursue what interests you and don't be afraid to try new things. Also, at the end of the day, being successful in this or any field is about relationships with people. You don't need to be the smartest person in the room, or even close, but you do need to get along with the people in the room. Groups like WAVMA, IAAAM, and the AAFV have advanced AVM dramatically and this is mostly from dedicated like-minded people working together.*

What do you predict for the future of AVM?

*Well, a fish specialty under the ABVP umbrella is just around the corner, and aquaculture jobs seem to be popping up like crazy. Plus, virtually every animal taxon has aquatic representatives, so, the opportunities are literally endless.*

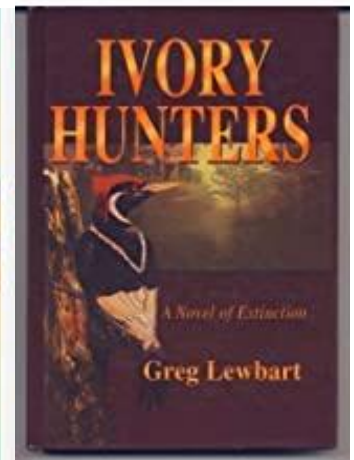
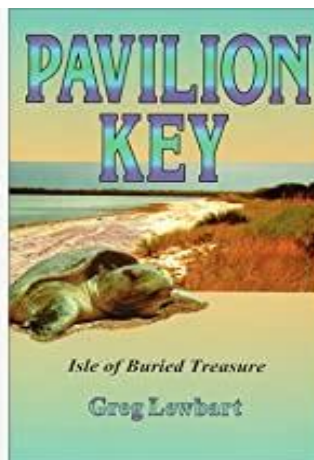
Should every veterinary practitioner have some basic knowledge about aquaculture?

*I don't know. That might be a big ask. And it depends on how you define "basic knowledge."*

What knowledge should that be? (first aid, how to euthanize a fish, other)?

*I think every veterinary practitioner should understand the importance of water quality, biosecurity, and good husbandry. And I think anyone practicing companion exotic animal medicine should be able to practice basic fish medicine (history taking, physical examination, anesthesia/sedation, and euthanasia).*

Dr. Lewbart is also the author of two works of animal-related fiction: *Pavilion Key* and *Ivory Hunters*.



*Roy Yanong (far left) with Greg Lewbart, Ruth Francis-Floyd, Brent Whitaker, along with other fish vets at the 1999 North American Veterinary Conference after teaching an Aquatic Veterinary Medicine Wet Lab.*

*Photo by Nick Saint-Erne*





***Koi Pond at Iguanaland  
Photo by Nick Saint-Erne***

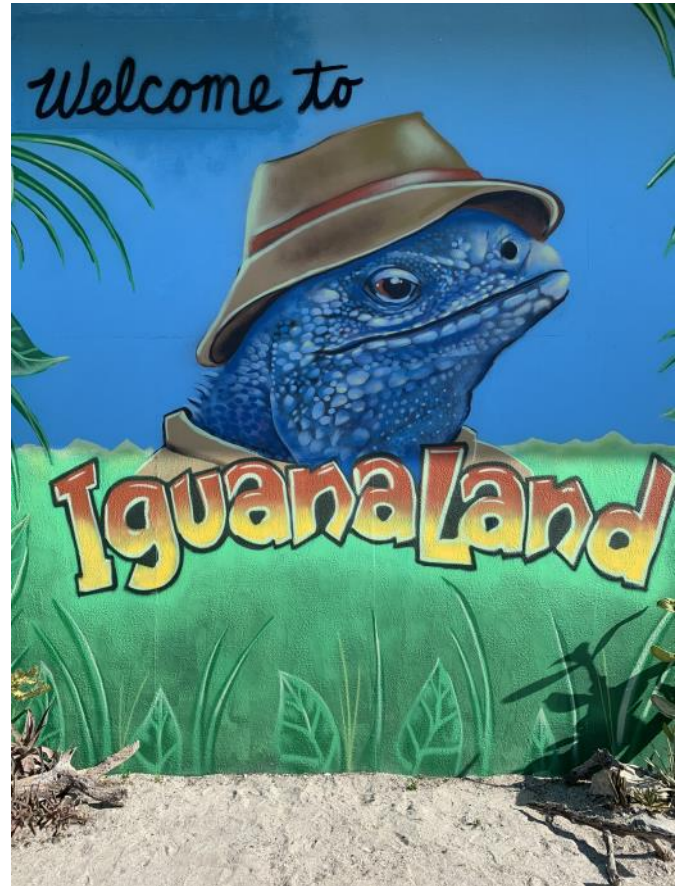
**Aquarium Report: Iguanaland**  
**Punta Gorda, Florida USA**  
**By Nick Saint-Erne**

While not an aquarium, *Iguanaland* does have a koi pond and aquatic turtle exhibits. It is really a reptile zoo, or herpetarium, rather than an aquarium. It opened to the public in early 2022 after several years of delays due to the COVID situation. The owner, Ty Park, has been a reptile enthusiast all his life, and started breeding reptiles over 30 years ago. His reptile breeding business supplied many pet reptiles to the retail pet stores. I was lucky to have worked with Ty for over 20 years as his business was one of our suppliers in the pet retail business.

As reptile conservation became more important, in addition to the common pet reptiles, Ty started breeding rare species of reptiles, with the hopes of repopulating them in their native habitats. He has the largest collection of rare species of Iguanas in the world, which he is breeding for conservation purposes.

His passion for conservation led him to be a major supporter of USARK and the Association of Reptile and Amphibian Veterinarians. Conservation and education became his predominant goal, so over the last few years he has turned his 12-acre breeding farm in Florida into an attraction where people can see many species of snakes, lizards, tortoises and turtles up close, and learn about their life and habitats. The goal is to use the funds from admission to Iguanaland to aid the conservation of rare reptiles species around the world.

*Albino Red-Eared Slider Turtles*  
*Trachemys scripta elegans*  
All photos by Nick Saint-Erne



Iguanaland is a Reptile Zoo, and an Education and Conservation Center, founded in February 2022 by herpetologist and conservationist, Ty Park.

Our primary mission:

- 1) To educate our youth and the general public about the diversity and importance of reptiles and amphibians to nature and humanity.
- 2) To provide a place for scientific research and teaching of professionals and students.
- 3) To raise funds for reptile and amphibian causes such as conservation, education, and research.

Iguanaland  
33900 Bermont Rd.  
Punta Gorda, FL 33982

(941) 844-5350

<https://www.iguanaland.com/>





*Iguanaland has an indoor picnic area surrounded by natural looking habitats housing snakes and lizards.*



*The outdoor exhibits are natural looking and include habitats for lizards, tortoises, water turtles and of course, a koi pond.*



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

**Treatment options for resistant Monogeneans (Gyrodactylids)**

Hi everyone,

I would appreciate some suggestions. I am seeing increasing levels of resistance to therapies against Gyrodactylids in our Koi sector, probably because of indiscriminate overuse of products.

I have a case at the moment I simply cannot find anything effective. We've tried immersion treatments of the following; Formalin x 2, salt immersion at 5ppt, Prazi-Pro x 2, an off-label use of a product called Endo+Lint (Levamisol/Prazi combo) and client is now trying off-label Prodose Orange (Albendazole/ Closantel combo).

I have never seen such horrible pathology with Gyros. This fish has severe hyperplasia of fins, especially, and tearing and hyperemia. I've considered bath treating but the client has around 20 similar sized fish in the pond, funnily enough no others are showing clinical signs.

His system is top-notch and water quality excellent. All fish are feeding still and on an excellent quality diet. Has anyone ever used injectable Ivermectin; would that work against Flukes? Or I'd welcome any suggestions.

Many thanks,  
 Dr Gill Taylor  
 African Aquatic Veterinary Services  
 South Africa  
 +27 (84) 5825618

Hi, Gillian,

I've been worried about resistant monogeneans for a while now. And it's getting worse. If treatments can be done at temperatures above 20°C you might have more success, in lower temperatures mostly higher doses are necessary and never sure that a product will succeed. Pure Praziquantel at 6 ppm dissolved in alcohol should in many cases be successful but not always. I wouldn't count on salt, formalin or levamisole to do anything for skin or gill flukes. Here we also have a combo product with mebendazole + closantel but only to be used if water temp is above 15°C and not to be overdosed, flubendazole would not be my choice (has been overused by hobbyists) but triclabendazole at 6 ppm could work and is less toxic.

Nitroscanate, if available, would be my first choice but resistance is growing. I've never tried ivermectin and will not try it on expensive koi. I've seen the excessive mucus on the dorsum many times in case of heavy fluke infestation.

Best regards,  
 Tim Barbe

Hi Gill,

Not sure about the fluke treatment problem, as I usually get good results with Praziquantel. If it has been used multiple times, you may need to go to a higher dosage due to bio-degradation. As to the fin problem, it is an unusual lesion for flukes to cause. It resembles Columnaris more, which I see a lot of coming out of the winter. I paint the fins with concentrated KMnO<sub>4</sub> solution and injectable ABs with good results.

Julius M. Tepper, DVM, CertAqV  
 Fellow, World Aquatic Veterinary Medical Assn.

Hi Gill,

When I used to work in the ornamental aquaculture sector, we would receive goldfish from Asia that were always completely infested with Gyrodactylids. We instituted 5-minute salt baths at 30 ppt before the fish went in their holding vats and it really helped get the problem under control from the start. Sometimes we wouldn't go the full 5 minutes if the fish started to roll or react, but for the most part all the goldfish handled it really well if they showed up in good condition. We did weekly parasite checks on all our vats and I could easily tell when the farm workers either cut time or skipped the baths completely.

I'm not sure of the quality of koi you are treating so 30 ppt may be too high for your comfort level, but I think you should be able to go higher than 5ppt and see better results. I never had much luck with Prazi Pro either, but with tough cases would dissolve Prazi powder for prolonged baths with decent success. I've personally never done it, but I know some advocate adding garlic to the feed.

Saying all that, keep in mind that the above only treats the fish and not the environment. Any of the above would need to be done in conjunction with vacuuming the environment. It is my understanding that Prazi only temporarily immobilizes Gyrodactylids to where they fall of the fish to the bottom, but does not necessarily kill them outright. So if it is used in the environment and the water is only flushed and not vacuumed there is the potential for reinfestation.

Good luck!

Cheers,  
 Johnny Shelley, MS, DVM, CertAqV

Praziquantel is broken down by bacteria in the bio-filter and the effectiveness of it is reduced in aquariums that have been repeatedly treated due to this breakdown. See this article for more information:

[https://www.researchgate.net/publication/299655993\\_Praziquantel\\_degradation\\_in\\_marine\\_aquarium\\_water](https://www.researchgate.net/publication/299655993_Praziquantel_degradation_in_marine_aquarium_water)

The more you use praziquantel in an aquarium, the shorter its duration of action. It would best be used in a bare quarantine tank.

Nick Saint-Erne, DVM, CertAqV  
 WAVMA Distinguished Fellow

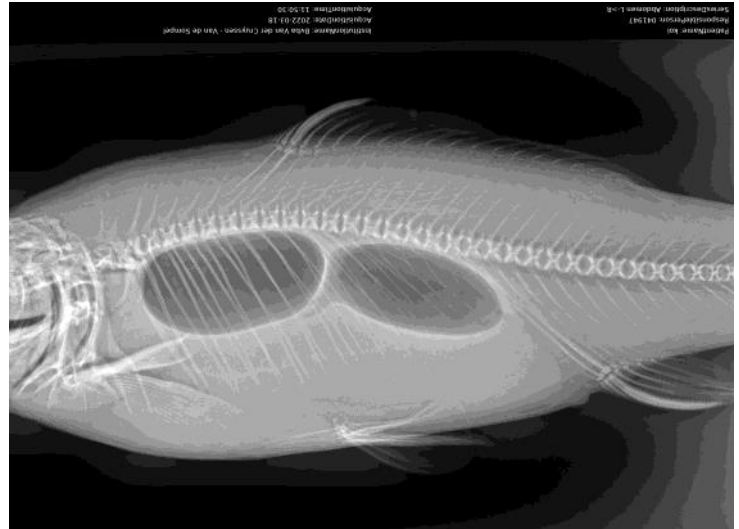
**Koi Body Deviation**

Dear Colleagues,

This is Radiograph of a yamabuki ogon koi, owner says it's a male. The koi has a lump on its side for 1 year. I once operated on another koi belonging to this person to remove a tumor, so he was thinking the same happened to this fellow.

The koi swims, eats, but is a bit slower than the rest. He is from Netherlands so temperature of the water is 10-12°C. Can something be done about this dislocation? I'm not aware of a cure. Thanks in advance !!!

Greta Van de Sompel DMV CertAqV  
Bv Van der Cruyssen - Van de Sompel  
Dierenartsen, Geraardsbergse steenweg  
Oosterzele  
johan.van.der.cruyssen@telenet.be



Dear

Greta,

I believe dislocation of the caudal swimbladder is quite a common condition in Koi. Especially larger and / or older fish and more often females than males (at least that is what I used to think, I don't keep record). Most owners fear that it is a tumor but it is quite easily diagnosed once the fish is sedated (we do not have such nice Rx pics, thanks for this!).

In my opinion there is no possibility to operate this condition: I know of a colleague who tried several times in vain - and usually not necessary, either.

I have a number of fish in my clients' ponds with this condition for years without any health problems.

Best regards,  
Ralph Knüsel, Dr. med. vet.  
fishdoc GmbH      mobil: +41 79 820 42 43  
Schaubhus 1      office: +41 41 458 12 00  
CH-6026 Rain      email: info@fishdoc.ch  
Schweiz      web: www.fishdoc.ch

I agree that this condition is quite common and is relatively benign, but disfiguring. There may be a correlation with a large egg mass developing in older females. This might have a tendency to displace the posterior chamber.

Julius Tepper  
dvm2468@gmail.com

I have transdermally aspirated gas from the caudal gas chamber to remove excess air that is causing the bulge, and have also successfully surgically removed the caudal gas chamber. In this case, transdermal aspiration may reduce the lump in the side to good effect; but it may also return.

Nick Saint-Erne, DVM, CertAqV  
WAVMA Distinguished Fellow



Hi Greta,

From a diagnostic point of view I think it would be worth doing a radiograph with intestinal contrast media just to highlight any masses that may be causing the distal swim bladder lobe to be laterally and ventrally displaced. This might dictate further treatment options. Cheers,

Stephen Pycroft  
[stephen.pycroft@adelaide.edu.au](mailto:stephen.pycroft@adelaide.edu.au)

**UTILIZATION OF PHOTOBIMODULATION TO HEAL A CHRONIC WOUND IN A PLECOSTOMUS (*HYPOSTOMUS PLECOSTOMUS*)**

Ericka Johnson, DVM  
 Nick Saint-Erne, DVM, CertAqV  
 Arizona Exotic Animal Hospital, and  
 Arizona-Sonora Desert Museum,  
 Tucson, Arizona, U.S.

**HISTORY:**

An adult plecostomus presented with a lesion of unknown cause on its head that had originally started two years previously. The plecostomus was active and swimming and eating normally. Around six months ago we started to notice white haloing around the initial injury, and the wound started to increase in size. The lesion was caudal to the left eye. Approximate lesion size is 3 cm diameter and round, with exposed bone and a soft, necrotic center. A ring of pallor, about 8 mm in thickness surrounds a depressed, hardened lesion with a centralized soft area. Tissue deep to the wound has dark red to purple color, with soft tissue covered in serosanguinous fluid.

Patient was otherwise doing well, eating and active. Patient was housed in the Life on the Rocks exhibit of the Arizona-Sonora Desert Museum. This large outdoor exhibit is shared with one other plecostomus and other aquatic inhabitants including fish and frogs.



1. Original presentation on July 15, 2021  
 Photos by the authors.

**DIAGNOSIS AND TREATMENT:**

Dr. Johnson performed a skin biopsy on the area of pallor and on the mineralized area. First site was negative for pathogens, second site (under scab) revealed copious amounts of rod bacteria. A sample was submitted for culture and sensitivity to the diagnostic laboratory. While awaiting culture results, the patient was isolated in an aquarium for daily treatment with Melafix® (API® Fishcare, USA) in the water and Silver Sulfadiazine Cream 1% (Ascend Laboratories, LLC, USA) applied to the lesion topically.

Slight improvement was noted from treatments during the week while culture results were pending. Bacterial culture and sensitivity testing had growth of *Aeromonas*, *Pseudomonas*, *Enterobacter*, and *Comamonas* bacteria. These were all sensitive to Enrofloxacin antibiotic. Injectable Enrofloxacin (Baytril® 22.7mg/ml, Bayer Pharmaceuticals, Berlin) was added to the treatments at 0.1 ml IM every 48 hours for 2 weeks treatment duration.



2. Lesion in August 2021, after antibiotic treatment but before laser therapy was applied.

After the initial two weeks of enrofloxacin injections, just Melafix added to the water was used for treatment. From July 2021 through September 2021, only minimal improvement was noted; therefore laser therapy or photobiomodulation (PBM) was instituted. The patient was held at the water surface with only his wound elevated out of the water. An opaque, plastic container was placed over the patient's head to protect the eyes from laser damage. A class IV, CTX-IQ laser (Companion Animal Health, USA) was utilized twice weekly at 0.5 watts and a pulse rate of 20hz for 2 minutes and 8 seconds each session. A total of 40 PBM treatments were performed over the course of five months.



3. Appearance on September 29, 2021 after receiving laser therapy.



4. skin lesion after one week of laser therapy treatment.

**RESULTS:**

Seven days following the initiation of PBM (photo 4), the wound appeared significantly improved. From this time on, twice weekly laser therapy was the only treatment applied while the plecostomus remained in isolation.



5. Nov. 17, 2021, White area on left side of head has decreased in size. Epithelium appears to be regrowing over the lesion.

At the one month follow-up, the wound appeared mostly healed and the patient was starting to cause trauma to its fins in the isolation tank, therefore the decision was made to return the plecostomus to the larger exhibit as soon as possible. After 15 December 2021, all treatments were discontinued and the patient was released in the Life on the Rocks exhibit.

One month after completing PBM (photo 6), it was noted that a very large area of pallor was present where the lesions once was. The area of pallor was much larger than the original wound. The patient was monitored, however, no treatments were ordered and the plecostomus was left on exhibit. The patient was examined 4 months after completing treatments and the area of pallor was almost fully resolved and normal pigmentation had mostly returned.



6. On exhibit - 1 month after completing PBM, note large area of pallor. January 19, 2022.

7. Feb 16, 2022, Skin lesion has healed but the epithelium has lost the melanophore pigmentation.



**DISCUSSION:**

This injury of unknown cause was chronic and had minimal response to systemic and topical treatments; despite culture results indicating that the pathogens present were susceptible to enrofloxacin. While the antibiotic was necessary to clear the infection, wound healing was delayed. The wound healed significantly faster once PBM was applied.

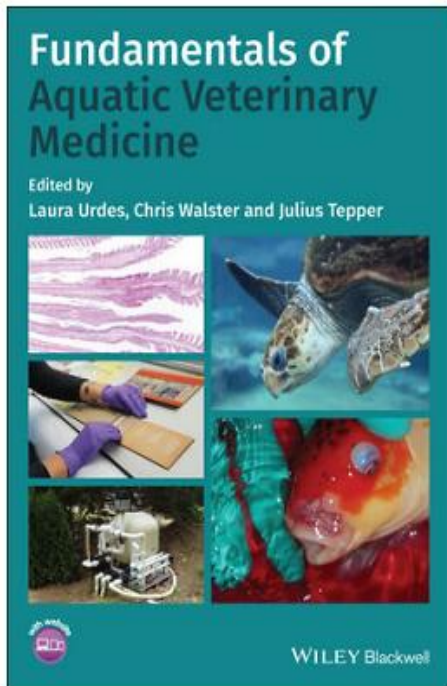
Therapeutic laser light applied to impaired tissue leads to a cellular response mediated by mitochondrial mechanisms; resulting in reduced pain and inflammation and speeds healing. The target of the laser is cytochrome C oxidase, a type of chromatophore in the mitochondria. The area of pallor that appeared after completing laser therapy may be a response of the melanophores after being exposed to laser light. While no other instances of this pallor effect in fishes can be found, this case had 40 PBM treatments, which exceeds the number of treatments documented in fishes.

**CONCLUSION:**

Photobiomodulation is a safe, effective, adjunctive therapy option for chronic wound healing in fishes and may cause temporary suppression or redistribution of melanophores.

8. Normal pigmentation returned four months after finishing PBM.





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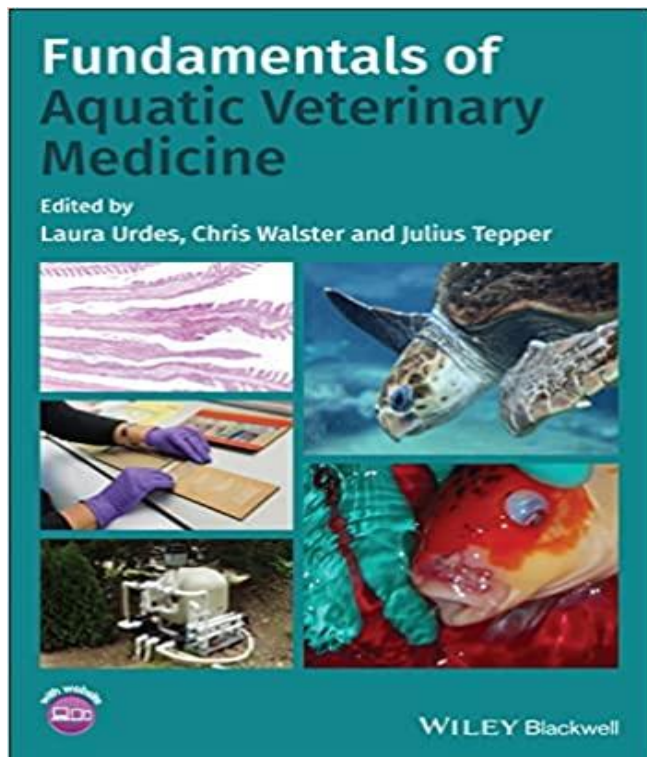
Laura Urdes (Editor), Chris Walster (Editor), Julius Tepper (Editor)

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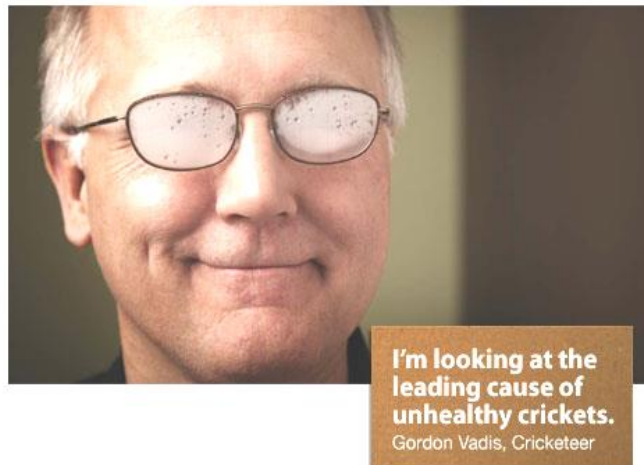


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**47th WSAVA World Congress - 2022**

Dates: 29-31 October 2022

Lima, Peru

See: [WSAVA](http://www.wava.org)

**48th WSAVA World Congress - 2023**

Lisbon, Portugal

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**International Symposium of Fish Parasitology**

Copenhagen, Denmark

August 21-26, 2022.

<https://icopa2022.org/>

This will be a hybrid meeting so people can join on-line or can be present physically. There will be at least three full days with fish parasitology (and even more if they get enough abstracts). Thus, fish veterinarians/parasitologists/pathologists are urged to submit abstracts before the end of January 2022.

Go to:

[15th International Congress of Parasitology - ICOPA 2022](https://icopa2022.org/)

**June WAVMA webinar**

B-1057: Best practice management of specific wounds in sea turtles: severe head injury and entangled flipper

Date: June 29, 2022

Time: 02:00 PM UTC

Presenter: Prof Delia Franchini

Credits: 1.0 hour (if you take the KSA and pass)

To register please go to [www.wavma.org/WebCEPD](http://www.wavma.org/WebCEPD) and click on register now link.

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**WORLD AQUACULTURE SINGAPORE**  
**Singapore – Nov 29 – Dec 2, 2022**

Asia's leading international conference and exhibition on aquaculture will be taking place as planned in Singapore from November 29-December 2, 2022, as an in-person meeting. Over 200 [exhibitors](#) have already signed up in a strong show of confidence and support for the event and the industry. Registration for the conference remains open with early bird categories still available. The deadline for abstract submission and call for papers has been extended to September 1, 2022. Still time to [submit abstracts](#).

**WAS North America & Aquaculture Canada 2022**  
 St. John's, NL, Canada  
 August 15 – 18, 2022

Preparations are ramping up for the first joint World Aquaculture Society (WAS), Aquaculture Association of Canada (AAC) and NL Aquaculture Industry Association (NAIA) meeting, and the largest conference and trade show in over 20 years in Canada on the science, business and technology of aquaculture.

"This meeting will celebrate the progress and cutting-edge innovations that have led to the successes of the industry to date and that will propel it into the future – but also recognize the important challenges faced in many areas," said John Cooksey, WAS Conference Manager. The programme sessions for the conference will be broad and topical, including those traditionally offered at WAS and AAC conferences, along with 36 special topics that are relevant, and timely.

<https://www.was.org/meeting/code/WANA2021>

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**Recorded Online Learning from Aquarium School**

The Aquarium Vet is delighted to be hosting the third **E-lasmo Conference** the week commencing May 9<sup>th</sup>, 2022. This is the only conference in the world that is solely dedicated to elasmobranchs in human care in aquariums and zoos. The E-lasmo Conference 2022 will be held virtually over four days with four hours of presentations each day.

One of the sessions will be solely devoted to Elasmobranch Training and Conditioning. Other topics will include Husbandry, Diseases and Parasites, Life Support Systems, Conservation and Reproduction. At this stage we are calling for abstracts on any topic related to elasmobranchs in human care - your research, your experiences, your animals, your successes and even your failures. Various presentation lengths are available, ranging from 10 minutes up to 30 minutes for more detailed talks.

All presenters receive free registration to the entire E-lasmo Conference 2022. If you are interested in presenting at the E-lasmo Conference 2022, please contact us at [rob@theaquariumvet.com](mailto:rob@theaquariumvet.com)

The entire E-lasmo Conference 2022 will be recorded and available afterwards to all attendees (in case you miss a session). To register for The Aquarium Vet E-lasmo Conference 2022, please [CLICK HERE](#).

Dr Rob Jones

The Aquarium Vet

[www.theaquariumvet.com](http://www.theaquariumvet.com) [www.aquariumschool.com](http://www.aquariumschool.com)

Veterinary Advisor to AZA Marine Fish TAG

**Columnaris Disease –  
 A Clinically Oriented Look at the Pathology and  
 Epidemiology in Aquaculture and Ornamental Fish**

A call for speakers:

In conjunction with the ISAAH9 conference, to be held in Santiago, Chile from Sept. 4-8, 2022, a full day program is being planned for Sept. 5, 2022 featuring discussion on the pathogenic species involved, the clinical appearance in different host species, the environmental factors predisposing to this disease, and successful management strategies.

If you would like to present on this topic, please contact J.M.Tepper at: [dvm2468@gmail.com](mailto:dvm2468@gmail.com). Some financial support may be available.

### Health and Colony Management of Laboratory Fish

Health and Colony Management of Laboratory Fish is a short course to help colony managers, researchers, and veterinarians monitor and maintain the health of a colony of aquatic organisms. This course is broad and is appropriate for technical staff, students, post-docs, and investigators, as well as veterinary professionals and trainees.

The course consists of lecture, laboratory exercises and discussions. With a high faculty to student ratio, during the course there are ample opportunities for students to discuss unusual and/or unsolved diagnostic case experiences from their home laboratories as problem-solving exercises.

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- Fish Disease: Pathogenesis, diagnostics, necropsy methods, treatment and control
- General Fish Biology: Anatomy, form and function
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- Core management: breeding, nutrition, water quality, system design and biosecurity.

Several species are discussed, but particular emphasis is given to zebrafish.

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### AQUACULTURE EUROPE 2022

Rimini, Italy  
 27-30 SEPTEMBER 2022

The issues of compatibility and mutual synergy between the users of marine, brackish and freshwater resources and their relationship with the quality of those ecosystems are central in promoting the sustainable development of aquaculture. Traditional and emerging Blue economy sectors, currently operating in the Adriatic, Mediterranean and water bodies throughout Europe, are expected to grow and expand over the next years and to sustainably contribute to food production, biofuel and clean energy.

Nevertheless, scientific literature provides clear evidence that, according to current trends and within 10 years, our coastal and marine environment will change for sea acidification and warming, sea-level rise and coastal erosion and all water bodies will be affected by flooding, eutrophication and pollution, with important effects on ecosystem services, fish and shellfish stocks and food security.

Climate change, depletion of natural resources, loss of biodiversity, food security and safety, environmental pollution and waste represent important sustainability challenges for further expansion of European aquaculture and the ambition of the European Green Deal and the Farm to Fork Strategy. It will be necessary for the sector to address these externalities, but also focus on the way in which we chose, use and re-use resources, as we move towards a circular Blue economy.

How aquaculture is facing these challenges, and the solutions put in place to develop a sustainable, responsible and productive and climate neutral European aquaculture sector for key marine and freshwater fish, shellfish and algal species are the main themes for AE2022 event in Rimini.

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