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A Renaissance Man—John Leland Pitts, DVM (1941-2009)

A dear friend and an early champion for aquatic veterinarians left us too soon on October 28, 2009 as a result of a stroke. In one way or another Dr. John Pitts was involved with aquatic veterinary medicine since his graduation from the School of Veterinary Medicine, University of California at Davis in 1970. Although he announced his "retirement" in 2006, he continued to operate Bellwether Consulting Inc., an aquaculture consulting company in Quilcene, WA that he owned, supporting numerous activities that promoted aquatic veterinarian medicine.

Dr. Pitts began his career practicing mixed animal medicine at Shelton Veterinary Hospital in Shelton, WA. From 1977-1981 he owned Belfair Animal Hospital, a mixed animal practice in Washington. He also served as Jefferson County Commissioner in Townsend, WA. During his tenure he began in earnest to become involved with aquaculture. John went on to serve as aquatic farm program manager for the Washington State Department of Agriculture in Olympia, WA from 1986-1993. During that time he also established Bellwether Consulting Inc. and helped found the National Association of State Aquaculture Coordinators (NASAC).

Forming NASAC was a major accomplishment. As an affiliate of the National Association of State Departments of Agriculture (NASDA), NASAC was a step towards the long road of getting 50 States



John & grandson Sagan

and numerous Territories coordinating aquaculture development across the U.S., getting industries to recognize that aquaculture is an agriculture industry (rather than part of harvest fisheries), and getting State agencies to address aquatic animal health, diseases and regulations. Today the stated mission of NASAC is "to promote, to encourage, and to assist the development of aquaculture in the United States by enhancing communication among Federal, State, local and tribal governmental agencies, agricultural research and extension institutions, and trade and marketing organizations."

Continued on page 6.



EDITOR'S NOTE**Happy Holidays!**

While this is the beginning of winter for some of us, since we are a worldwide association, including the Southern Hemisphere of our dear old globe (how do you keep from falling off?), we must remember that for those down under (not just Australia and New Zealand, but also South America, Africa, Polynesia, and the penguins in Antarctica) this is the beginning of their summer!

So as the snow flies through the night air, sparkling in the light of the full moon (although it is a full moon as I write this, living in Phoenix, Arizona USA there is no snow—nor will there be any here— as it is often 80 degrees Fahrenheit on Christmas day...), as the snow flies through the air somewhere—which brings to mind the beautiful idea of snow capped trees for the holidays, I am thinking of some of our WAVMA members who are having a picnic on the beach for the holidays, or to celebrate the new year.

That is the truly remarkable thing about WAVMA—it is World-wide. The ability to make an organization work around the world successfully is enhanced by so much recent technology. Not only can I have conversations with the local veterinarians here in Phoenix, but with a mere email or a simple Skype call I can consult with colleagues from Liverpool to Lima, Peru, or to Peru, Illinois.

Think about the potential for sharing information and cases and photographs or radiographic images. In the last few months the activity on the WAVMA Listserv has spread advice and suggestions on cases to all corners of the globe. Where else can you get so much for so little?

Next year I envision even more advances and exchanges. The field of Aquatic Veterinary Medicine is rapidly advancing, and your participation in WAVMA is a catalyst to this advancement. It is quite exciting and I am expecting a wonderful 2010!

Nick Saint-Erne, DVM
AVN Editor
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EXECUTIVE REPORTS

President's Report

Dr. John Pitts: 1941-2009 A Professional and Personal Perspective

In October, the fish veterinary community suddenly lost a pioneer and a champion of aquatic medicine. In the early nineties, when Dr. John Pitts was the "Aquatic Farm Program Manager" of Washington State's Department of Agriculture, he started challenging the US status quo that there was no federal agency with a clear mandate to support the aquaculture industry, and that the existing agencies were not adequate to foster this burgeoning answer to our current and future seafood demands.

He later penned an article on this for the Journal of the American Veterinary Medical Association (JAVMA Vol. 198, No. 2, January 15, 1991, pages 234-5) entitled: "A veterinarian's role in aquaculture". I was a new fish health veterinarian in Maine and experiencing some very puzzling attitudes toward fish health from regional natural resource agencies. Their approaches, decisions, and edicts did not seem to be from the epidemiological-based foundations that were obvious to me. Their programs and policies challenged (unnecessarily, in my opinion) the business viability of several commercial New England fish farms.

John and I first met as members of the Joint Subcommittee on Aquaculture's Quality Assurance in Aquaculture Production Task Force. Representatives for various foodfish industries across the country had been called together by the USDA and FDA to "gently remind us" what was *legally* available for aquaculture livestock, and how the drug registration process worked. John and I were the only veterinarians so we naturally gravitated toward each other, commiserating on the current state of fish medicine and the paucity of tools, and conniving on what we could do to try and help the situation. We also

experienced a certain amount of derision by many of the other committee members. After all, what did veterinarians know about fish?

John suggested that we both approach the American Veterinary Medical Association to try to get some organized support for the aquatic veterinarians and our issues. The AVMA set up the Aquaculture and Seafood Advisory Committee (currently the Aquatic Medicine Veterinary Committee) which brought aquatic colleagues from around the country to Chicago for intense discussions on the state of fish disease practice and regulations. Discussions first showcased to me not only John's eloquence and rhetorical ability, but also with the gentle manner with which he could deliver a radical idea or criticism – usually disarming apprehensions within a group. He would revel in provoking any area he found nonsensical however.

John had a heavy influence in writing a position entitled: "AVMA Statement on Veterinarians in Aquatic Animal Medicine," which stated that the professional standards, education, qualifications and examinations process made the veterinarian the legal health care professional for the aquatic animal health field. The statement infuriated the non-veterinary fish health community in the US as it was perceived to be a challenge to their own stated professionalism. The reaction didn't bother Dr. Pitts, and he would quietly reaffirm the position when challenged from outside the profession in his typically calm and affable way.

John's zest for life was infectious and after a long day's meeting, often after exhaustively working on serious issues, while others would retire, he would always be pushing to venture downtown Chicago or D.C. or wherever we were, to try and find a local



**Dr. John
Pitts and
his wife
Madelyn,
September
2009**

President's Report—continued

blues joint and some good beer – gabbing all the way about many professional and personal things (especially about his family and his passion for the cinema). John would stop and talk with everyone. He had a knack to be able to strike up a conversation with ANYBODY. His interest in others, his openness and his demeanor would immediately cause a doorman, or hotel maid, to lower their guard and start a conversation on almost any topic John led them on with his story telling prowess – often causing an elevator to be missed or a taxi to blow its horn in impatience.

John was also a rascal and a proud American, who had a very strong belief in what his nationality represented. Our phone conversations would start with me exclaiming as loud as I could: “PITTS!!!” to which he would counter with (I can still hear his voice loud and clear): “HOSER!”, putting me in my place and reminding me of my Canadian heritage.

One late night walk, after a hard day of frustrating meetings in D.C., we decided to climb the steps of the Capitol building, to rest our feet and gaze out across the Mall at the lit Washington and Lincoln monuments. This was shortly after “9/11” and the stairs had been barricaded off. As we walked along the barricade, John saw an opening that was “obviously meant to be where we could get access to the stairs”. After assuring me that this was a public building and we were both Americans and actually owned this property, he convinced me to accompany him through the barricade and up the stairs. No sooner had we climbed a few steps, than we were surrounded by a half-a dozen men who seemed to come out of the shadows, with guns and dressed in S.W.A.T.-like gear. They demanded to know what we were doing there, asked to see some I.D., and searched us. We were kept there for about an hour, as our

names were checked and cross-checked with some security registry. I was hoping that John didn't have anything in his “liberal” background that might cause us to be detained for any additional time. Of course, through the whole process, John couldn't remain silent. His usual tactic of trying to befriend through small talk with topics such as “family life in D.C.” didn't seem to work with the lead arresting officer. John noticed this and changed his approach trying to argue that the Capitol was his building – being an American taxpayer - and he had every right to be there, and that, in fact, he understood that the officer was doing his job, but that this was what was wrong with America, and by adopting this attitude, they were showing that the terrorists has won, etc., etc.,

Of course, all this time, I was saying beneath my breath: “John, Please shut-up ... shut-up!”. We had a good laugh about it afterwards, but I did notice that my name somehow got on a TSA list after that that caused me all sorts of inconveniences in airports for years afterwards.

Another memory of the gentle rascal was when he came to visit me and my family in Maine in the early nineties. That week, John toured with me through my fish farm practice which straddled the Maine-New Brunswick border. I had to travel across the border several times a week and counted on my familiarity with the guards to expedite the frequent process. Coming back from Canada, I would often pick up some duty-free drink which, sometimes, the border guards would let it pass, and sometimes make me come in and pay about \$1.70 in duty since I hadn't been out of the country for more than 24 hours. We were coming back from a New Brunswick salmon farm and, being the Hoser, I had to pick up some Canadian beer for John and I to kick back and enjoy that evening. At the border, the

guards told me that I had better go in and pay the duty. John got out to stretch his legs and followed me into the office where, behind a counter, stood 6 border guards. Always conscious of his role as a taxpayer, John blurted out: “Geezuz, how many people does it take to collect a lousy buck-seventy!” Needless to say, we were detained for over an hour as Customs and Immigration's finest tore apart the car – to make a point. I was very annoyed at John at the time, but as with D.C., it became one of those laughable episodes for years to come.

John is survived by his lovely wife: Madelyn and precious son Brian and his family, including grandson! Of course, after I moved to Washington State, we never did get together enough across the Sound. We both seemed to see each other out-of-state at meetings and conventions more often. We always said we would get together more, but there was “always tomorrow”.

To those who never knew John, he was one of a kind and his personality and energy will be sorely missed. He became a consultant to the American Pet Products Association after Washington State closed its aquaculture program. He also made the rounds of many schools championing and fostering animal care and veterinary medicine. Through all that, he remained committed to aquatic animal health and continued to pound away at the issues that had long since left many of his colleagues exhausted.

Good bye, Dr. Pitts, and thank you for all your hard work fostering aquatic animal medicine and your inspiring friendship. Let's all remember his perseverance and attitude as we continue in our efforts to improve aquatic medicine. He would like that.

Hugh Mitchell, DVM, MSc
WAVMA President 2009
hughm@aqualifesci.com

Secretary's Report

I would like to take this opportunity to remind members that WAVMA membership runs for a calendar year and that membership dues for 2010 should be paid in January. Information on payment can be found on the website (www.wavma.org) or by contacting the Treasurer, Dr Dusan Palic.

Rather embarrassingly, I have to say that the new website is still being developed. By the time it is up and running some two years of discussion will have gone in to it so I hope it proves to be as good as I anticipate. One thing which will definitely happen when it is ready, members who are not in good standing will no longer have access to the member's listserv amongst other valuable membership benefits. Please ensure that your membership is up to date!

Ten or more years ago, an association such as WAVMA could not have existed without significantly more funding and probably not at all. The internet is used to hold (via [Skype](#)) virtually all of the Executive Board and committee meetings. As the members listserv has demonstrated, ask a question and you will likely get a response from many of the foremost aquatic veterinarians from around the world. Access to this sort of information undoubtedly makes our professional lives easier but contributes to "information overload". Unless the information received is pertinent to the day's tasks, if you are like me, you ignore it only to find a couple of weeks later that you vaguely recall an interesting article or pertinent information but try as you might you cannot remember where it is, who sent it or the source of the information. A decent filing system helps but when trying to synchronise between work computer, home computer, laptop and smart-phone things tend to get missed and that wonderful file name you thought of at the time no longer seems to pro-

vide the correct description. Even worse in the intervening time the internet address has changed!

My emails today provided several examples of these dilemmas. Numerous Promed postings (www.promedmail.org), none are of great importance for aquatics, but some interesting public health issues. As usual most are read but then binned even though I wonder when I will need the information.

The World Veterinary Association newsletter (to subscribe <http://www.feedblitz.com/f/f.fbz?Sub=72556>) reveals there is a new "trailblazing" book on "One Health" (www.onehealthinitiative.com) and following the link to Amazon suggests this is a book I would like – not only does it fit with my aquatics interests but also public health. I decided to place the link in my favourites folder and hope I will remember it if I decide to order.

Following the link to the One Health initiative reminds me that it is a web site I would like to look around when time permits, but a brief perusal of the menu bar raises further dilemmas – should I join as a supporter or is this something that WAVMA should be a supporter of? Should the Executive Board discuss this? At the bottom of the newsletter I am reminded that I still have to download the AVMA Podcast on "Antimicrobial resistance – Assessing the risk" ([http://www.avmamedia.org/display.asp?sid=208&NAME=Antimicrobial Resistance -- Assessing the Risk](http://www.avmamedia.org/display.asp?sid=208&NAME=Antimicrobial%20Resistance%20--%20Assessing%20the%20Risk)). It is a different matter when I will get the time to listen to it – maybe whilst walking the dog?

The Aquavetmed newsletter (www.aquavetmed.info) informs me that the latest Aquatic Animal Drug Approval Partnership Program newsletter (was that formally NADRF?) is available (<http://www.fws.gov/fisheries/aadap/newsletter.htm>) and I have another interesting web site to look around,

remember and digest the information contained there.

I also peruse the latest Eurosurveillance volume (www.eurosurveillance.org) which is mainly public health orientated but has articles of interest to aquatics and also the latest Science for Environment Policy newsletter (http://ec.europa.eu/environment/integration/research/research_alert_en.htm).

Having done all this I have now wasted most of the morning but know that if I had not done it at the time, the chances were it would never happen. Was it worth it? Time will tell.

Where am I going with this? WAVMA provides an excellent forum for the exchange of information between colleagues. The problem is keeping track of that information and keeping it available for others or for use at a later date. This should be one of the prime functions of the WAVMA website.

One final thought. Several of us are getting slightly long in the tooth and have spent many years gathering information sources and networks together. To my mind this has meant a lot of duplicated effort which those new to aquatic veterinary medicine will also need to repeat. Surely, it would be better to provide those starting off on their career the benefit of that knowledge?

I know requests for contributions to the website have been made before but how about every member contributing something either a PowerPoint, photos or simply a list of pertinent websites? If you have something to contribute, let me know! You can email it to me and it can be posted to the website. Information for the Aquatic Vet News is also appreciated.

Chris Walster
WAVMA Secretary
chris.walster@onlinevets.co.uk

WAVMA COMMITTEE REPORTS**Communications Committee**

The communications committee is responsible for the WAVMA newsletter (this one you are now reading!), the website, and the Listserv. Please volunteer to help keep these valuable WAVMA support vehicles running!

Nick Saint-Erne, DVM

WAVMA CC Chair saint-erne@q.com

Membership Committee**New WAVMA Members**

Please join us in welcoming the following new members:

Dr. Mark Stidworthy (UK)
 Dr. Vittorio M. Moretti (Italy)
 Dr. Pavlos Ioannidis (Greece)
 Dr. Evgenia Gourzioti (Greece)

PLEASE FEEL FREE TO CONTACT ANY OF THE WAVMA EXECUTIVE BOARD MEMBERS OR COMMITTEE CHAIRS ON ISSUES INVOLVING THE ASSOCIATION.

REFER TO THE "CONTACT CORNER" ON PAGE 28 OF THIS NEWSLETTER FOR EXECUTIVE BOARD AND COMMITTEE CHAIR'S CONTACT INFORMATION.

Dr. John Pitts—Continued from page 1 -

Realizing he could help make an impact on the development of aquatic veterinary medicine through organized veterinary medicine, John helped form and served as one of the initial members (1993-1999) of the Aquaculture and Seafood Advisory Committee of the American Veterinary Medical Association.

This committee (later renamed the AVMA Aquatic Veterinary Medicine Committee - AqVMC) started the process of attempting to clearly distinguish the roles, responsibilities, and participation of veterinarians and non-veterinary fisheries biologists in aquatic animal health. In that position he assisted the AVMA develop a policy that still today serves as a guideline for developing and applying Federal and State aquatic animal health regulations and disease control programs. Even after ending his term on AqVMC John continued to contribute to AVMA activities through publications in the J. Amer. Vet. Med. Assoc., by attending AqVMC meetings as an observer representing the American Pet Product Association.

Dr. Pitts also played a highly influential role representing the interests of the veterinary profession and the pet industry by promoting the common interests of both. Representing the American Pet Product Association he was able to get these industries and the veterinary profession working towards a common solution. The results were big! It was his novel, insightful and very constructive ideas and concepts that led to helping pass the Minor Uses and Minor Species Act that was signed by the President Bush in 2004. Persevering (really laboring) for almost 10 years participating in the "MUMS Coalition," and getting many to lobby for the MUMS Act, John assisted us, and convinced Members of Congress and the FDA, there was another way to legally market drugs for aquarium (and other non-food) minor species. John recognized many of these "therapeutic remedies" could not reasonably go through the long, laborious and expensive FDA drug approval process. It is due to his innovative thinking and persistence that the concept of FDA "indexing" drugs was incorporated into the MUMS Act.

John had a special (to some a unique) interest in connecting veterinary medicine to mollusc aquaculture, particularly through his involvement with the Pacific Coast Shellfish Growers Association. I "found" him in the mid-

1990s while I was designing and building specific-pathogen-free hatcheries in Chesapeake Bay and helping East Coast aquaculture develop biosecurity programs. I discovered I was not the only veterinarian in the U.S. involved with molluscs – so started a very productive friendship and professional collaboration. Not only was he involved with helping develop the "Shellfish High Health Program Guidelines" for West Coast producers and played an influential role when the EU inspected the U.S. aquaculture industries ability to meet international standards, he fought for using Certificates of Veterinary Inspection to allow producers to easily ship live animals to Europe and elsewhere. John continued to promote molluscan shellfish industries and aquatic veterinary medicine until his untimely death – to see John in a recent video clip made for the 2009 AVMA Convention, go to <http://tinyurl.com/ygkut5n>.

Veterinary students were special to him. Over the years he contributed to many Student American Veterinary Medical Association (SAVMA) programs and activities – and was highly instrumental in forming SAVMA as it is today. While still in veterinary school John served as President-elect of the University of California-Davis SAVMA. In 1969 he chaired a committee that was instrumental in creating SAVMA as an autonomous organization and enabling what were once isolated student chapters to function effectively as a single unit on the national scene. Honoring his contributions to veterinary students, in 2006 SAVMA established the Dr. John Pitts Distinguished Service Award which recognizes leadership exhibited by veterinary students. John didn't stop there; indeed John was planning to help develop and participate in aquatic veterinary seminars for the 2010 SAVMA Symposium in Madison, Wisconsin.

John, his friendship and quiet wisdom, will be sorely missed. He helped set us on the right track and get the veterinary profession, aquatic animal industries and clients to recognize the importance of aquatic veterinary medicine. While we will miss him, it's time now to celebrate his life, his accomplishments, and build on the many things he started for developing and promoting aquatic veterinary medicine. John is survived by Madelyn his wife of 45 years, Brian his son, Cheryl his sister, and his brother Dr. Clyde L. Pitts, who is a small animal veterinarian in Studio City, CA.

- David Scarfe

ASSOCIATION'S ENDEAVORS

There has been some interesting discussions on the WAVMA listserv recently. Be sure to sign up for the members listserv.

QUESTION:

Wondering if anyone has a general standard protocol for inappetent freshwater fish.

Dr Richmond Loh

Perth, Western Australia.

RESPONSES:

I generally use an IM injection of dexamethasone (5mg/kg) and Vitamin B12 (20mg/kg). Occasionally I use nandrolone (1mg/kg). All based on empirical evidence. Often it works within 24 hours but occasionally takes up to 3 days. Repeat injections if no effect. I have also found aniseed very good for immediate stimulation of appetite – dip cotton bud in

aniseed oil/flavouring, then dip bud in tank, add food to water.

Chris Walster

I give a B-complex injection, and use a gastric tube to get started on weight gain and positive nitrogen balance. The mixture that I tube fed was lactate ringers, Nutrical, vitamin complex, calcium (especially if diet was fillet only and not whole fish), flake food, some frozen shrimp, and pelleted fish feed high in fish based protein. Ddx included low thiamine from frozen fish diet. I also used an antibiotic.

Sandra Yosha, DVM, PhD

Stanozolol does seem to work consistently in most. It was available as Winstrol-V, but is now available from compounding pharmacies both as an injection and capsules.

Don Stremme

WAVMA Members Discussion Listserv

WAVMA Members-L is open to any WAVMA in good standing. To subscribe (or unsubscribe) simply send an e-mail to WAVMA-L_Moderators@mailhost.wavma.org with "Subscribe WAVMA Members-L" (or "Unsubscribe WAVMA Members-L") in the Subject line -- and add your full current contact information in the body of the message. After confirming you are a current member, the listserv administrators will add you to the listserv. Problems encountered or complaints should also be sent to WAVMA-L_Moderators@mailhost.wavma.org. Please note that in early in 2010, WAVMA members that have not updated their 2010 will be unsubscribed by the listserv administrators.

MEMBER'S LETTERS

Dear WAVMA Members:

The American Veterinary Medical Association (AVMA) has reconvened the AVMA Panel on Euthanasia and is in the process of revising its Euthanasia Guidelines. Members of the Panel's Aquatics Working Group are interested in receiving constructive comments regarding the *AVMA Guidelines on Euthanasia*, available for inspection on the web at:

http://www.avma.org/issues/animal_welfare/euthanasia.pdf.

The Aquatics Working Group (AWG) will be concentrating their efforts on fish and aquatic invertebrates and are interested in receiving constructive comments regarding these taxa. Specifically, the AWG is interested in hearing from WAVMA members about which sections on the euthanasia of fish and other aquatic species they believe are still appropriate and scientifically justified; which sections are not feasible or no longer justified; if any circumstances are not covered sufficiently; or if there are any other issues that have not been re-

solved or discussed in the document. Please provide the AWG with scientific or gray literature citations that are relevant and not presently incorporated in the existing document.

Send me your suggestions via email and give your contact information in case we have questions. Please put in the email Subject line: WAVMA member Euthanasia comments.

Thank you for your help.
Sincerely,

Roy P. E. Yanong, VMD
Associate Professor
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HELP WANTED

Communications Committee Members



To assist with Newsletter & Web Designs

Contact Nick Saint-Erne
Saint-Erne@Q.com

BOOK / LITERATURE REVIEWS***Human Health Consequences of use of antimicrobial agents in Aquaculture.***

Heuer, OE, et al (2009).
Clinical Infectious Diseases, 49 (7) -
Oct. 2009

Intensive use of antimicrobial agents in aquaculture provides a selective pressure creating reservoirs of drug-resistant bacteria and transferable resistance genes in fish pathogens and other bacteria in the aquatic environment. From these reservoirs, resistance genes may disseminate by horizontal gene transfer and reach human pathogens, or drug-resistant pathogens from the aquatic environment may reach humans directly. Horizontal gene transfer may occur in the aquaculture environment, in the food chain, or in the human intestinal tract.

Among the antimicrobial agents commonly used in aquaculture, several are classified by the World Health Organisation as critically important for use in humans. Occurrence of resistance to these antimicrobial agents in human pathogens severely limits the therapeutic options in human infections.

Considering the rapid growth and importance of aquaculture industry in many regions of the world and the widespread, intensive, and often unregulated use of antimicrobial agents in this area of animal production, efforts are needed to prevent development and spread of antimicrobial resistance in aquaculture to reduce the risk to human health.

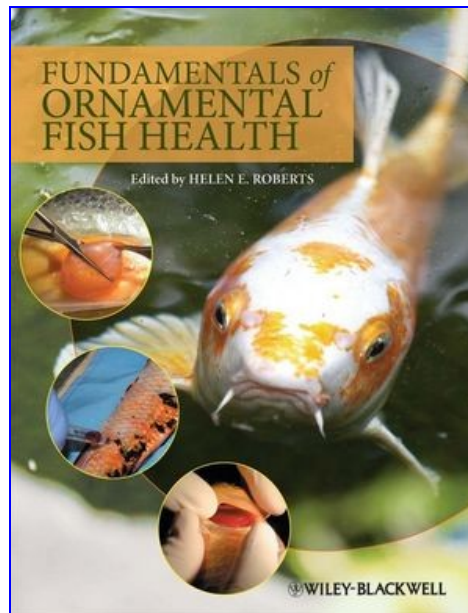
STUDENT'S ISSUES

We invite student members to contribute issues or information to this column.

Important news for students wanting to join the WAVMA – all students currently enrolled in recognized veterinary academic programs (including post-graduate programs, internships and residencies) can join the WAVMA for 50% off the normal dues. This could be the best \$50 you ever spent.

Further information is available on the WAVMA.org website and on the 2009 Membership Application at the end of this Newsletter.

The full publication is available for download at no cost at:
<http://tinyurl.com/y8d3fow>.

NEW FISH HEALTH BOOK!

Editors note:

I have ordered this book but have not yet received it. I will provide additional comments in the next **Aquatic Veterinary News** after receiving the book.

NSE

Fundamentals of Ornamental Fish Health

[Helen E. Roberts](#) (Editor)
ISBN: 978-0-8138-1401-8
Paperback 244 pages
December 2009,
Wiley-Blackwell US \$69.99



Fundamentals of Ornamental Fish Health is a complete guide to managing the health and well-being of ornamental aquatic animals. Grounded in the foundations of fish medical care, the book summarizes nonlethal aquatic diagnostics and medicine, putting the information within a clinical context.

Providing a comprehensive overview of the subject, *Fundamentals of Ornamental Fish Health* equips aquatic animal health professionals with all the information needed to competently and effectively treat these patients, from transporting and examining fish to diagnostic techniques and the identification and treatment of specific diseases and syndromes.

COLLEAGUE'S CONNECTION**Fish doctor cares for special clientele—Dr. Scott Weber****Daily Democrat,
Woodland, California**

If a combined sequel of the films "Dr. Doolittle" and "Finding Nemo" is ever made, Hollywood will undoubtedly come looking for Scott Weber.

A veterinarian trained in the health needs of fish and other aquatic species, Weber leads the new Aquatic Animal Health team at UC Davis' William R. Pritchard Veterinary Medical Teaching Hospital. The team, which includes exotic-animal veterinarians and a technical crew, is part of the hospital's Companion Avian and Exotic Pet Service.

Weber, a UCD alumnus, returned here after practicing seven years as the head veterinarian at the New England Aquarium in Boston. He is well versed in treating fish, amphibians, birds, marine mammals, reptiles and aquatic invertebrates that live in fresh, salt or brackish water.

Sometimes Weber's patients are brought to UC Davis' veterinary hospital, but usually he and colleagues visit them at aquaculture farms, retail fish operations and backyard ponds.

"Many of our fish cases are local but because veterinarians who specialize in fish health are fairly uncommon, some patients have come from the Eastern United States, Hawaii and even Japan," Weber said. "And our clients also span a broad spectrum, including home aquarium and koi pond owners, aquaculture farm operators, retail and wholesale dealers, as well as personnel from laboratories, public zoos and aquariums, and even state or federal agencies."



What can a fish doc do to help prevent disease or heal an ailing fish? Surprisingly, Weber and the Aquatic Animal Health team are able to offer a wide range of services including water testing, physical examinations, parasitology, surgery, endoscopy, skin and scale scrapings, laboratory cultures and viral diagnostic tests. They also provide imaging procedures such as X-rays, ultrasound, and CT and MRI scans. And when necessary, post-mortem exams, called necropsies, can be performed.

The team's services are built on the long-standing experience of the veterinary school's fish health group, which is responsible for discoveries about koi, sport fish and wild fish health, as well as development of new testing methods to screen for and help prevent fish diseases, such as koi herpes virus.

NOTE: WAVMA IS AWARE THAT FISH OWNERS (POTENTIAL CLIENTS) AND GOVERNMENT AGENCIES THROUGHOUT THE WORLD ARE UTILIZING THESE ONLINE RESOURCES TO LOCATE AQUATIC VETERINARIANS & DIAGNOSTIC LABS !!!



If you are active or interested in any areas of aquatic veterinary medicine register in the free online directory.

Register AT NO COST TODAY at www.AquaVetMed.info

CLINICAL REPORTS

Organ Regeneration In Zebra fish (*Danio rerio*): Unraveling The Mechanisms

Science Daily (Nov. 10, 2009) —

The search for the holy grail of regenerative medicine -- the ability to "grow back" a perfect body part when one is lost to injury or disease -- has been under way for years, yet the steps involved in this seemingly magic process are still poorly understood.

Now researchers at the Salk Institute for Biological Studies have identified an essential cellular pathway in zebrafish that paves the way for limb regeneration by unlocking gene expression patterns last seen during embryonic development. They found that a process known as histone demethylation switches cells at the amputation site from an inactive to an active state, which turns on the genes required to build a copy of the lost limb.

"This is the first real molecular insight into what is happening during limb regeneration," says first author Scott Stewart, Ph.D., a postdoctoral researcher in the lab of Juan Carlos Izpisua Belmonte, Ph.D., who led the Salk team. Their findings, which will be published in a forthcoming issue of *Proceedings of the National Academy of Sciences*, U.S.A., help to explain how epimorphic regeneration -- the regrowing of morphologically and functionally perfect copies of amputated limbs -- is controlled, an important step toward understanding why certain animals can do it and we cannot.

"Our experiments show that normal development and limb regeneration are controlled by similar mechanisms," explains Izpisua Belmonte, a professor in the Gene Expression Laboratory. "This finding will help us to ask more specific questions about mammalian limb regeneration: Are the same genes involved when we amputate a mammalian limb? If not,

what would happen if we turned them on? And if we can affect these methylation marks in an amputated limb, what effect would that have?"

The Belmonte lab uses zebrafish, a small fish from the minnow family, to study limb regeneration. "If you amputate the tail of the zebrafish, it regenerates in about a week, seemingly with no effort and leaving no scar," explains Stewart. "What's more, it regenerates a perfect copy and -- like growing grass -- it will do this over and over again."

Since regeneration recapitulates in broad strokes embryonic development, during which a complex multicellular organism develops from a handful of embryonic stem cells, the researchers began by comparing gene expression patterns between the two processes. During development, genes within specific cell types are turned on and off to trigger the necessary expression patterns that create a whole animal. Once their job is done, they lie silently till they are turned on once again following amputation.

Based on these similarities, Stewart reasoned that genes involved in regeneration may share silencing mechanisms with the ones active in embryonic stem cells. Embryonic stem cells are maintained in a ready-to-go state, "poised" for action to become whatever cell type is needed. The key to this "poised" state are his-

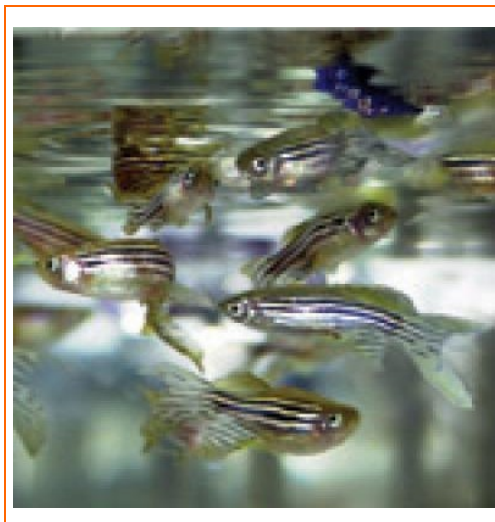
tones, DNA packaging proteins that are also used as carriers for chemical modifications, such as methylation and acetylation. These chemical marks serve as "on" and "off" switches for specific genes.

Stewart discovered that the histone modifications that poise embryonic stem cell-specific genes for activation are also found on the histones near genes involved in regeneration, putting them into a ready-to-go state. "This suggests that two different gene expression programs may exist; one for normal cellular activity and one for regeneration," explains Stewart.

To test this hypothesis, the team looked at the histone marks during regeneration. As suspected, they saw a reduction in "off" switches and an increase in "on" switches in regenerating tissue, tipping the balance toward gene expression.

Delving deeper, the researchers found that enzymes that remove the "off" mark, so-called demethylases, are present in high levels in regenerating tissue. One enzyme in particular, called Kdm6b.1, is found exclusively in cells that are undergoing the regeneration process. Without Kdm6b.1, zebrafish failed to regenerate amputated fins, meaning removal of the "off" mark is a prerequisite for fin regeneration.

In the long term, the Salk researchers hope that these findings will help them understand whether we can affect the outcome of mammalian limb regeneration. In the more immediate future, the team plans to use global approaches to identify all the targets of Kdm6b.1 during regeneration, and to find out what gives the signal to turn these genes off when regeneration is complete.



<http://www.sciencedaily.com/releases/2009/11/091102171419.htm>

EMERGING ISSUES

Scientists advise caution with transgenic fish

Sweden
September 02, 2009

Researchers studying transgenic fish at the [University of Gothenburg](#) at the behest of the European Union (EU) have highlighted the potential of the fish to revolutionise fish farming but warned against its open system cultivation.

"Until further notice, transgenic fish should be bred in closed systems on land," specified Fredrik Sundström at the Department of Zoology of the university. The fast-growing fish, however, can go a long way towards taking the weight off endangered and overexploited wild fish stocks, he noted.

The scientists furnished fish with transgenes, or genes from other organisms, and were able to produce fish that can grow substantially faster and can resist diseases with greater resilience. It was found that fish genes can be modified to handle different situations more smoothly, such as survival and spawning in colder temperatures, and yield higher production volumes. Regardless, if these fish should enter the wild, they may cause harmful effects to the ecosystem.

In terms of toxins, these fish, genetically modified organisms (GMO), are thought to resist the accumulation of toxins such as growth hormones within their bodies better than natural fish species. This resistance, though, would allow greater concentrations of harmful chemicals to climb the food chain and end up in humans.

Sundström has worked with transgenic salmon and rainbow trout to research their potential impact on natural ecosystems. He did this by simulating escapes within an enclosed laboratory and discovered

that these fish have a much greater effect on natural ecosystems than non-transgenic farmed fish. For instance, genetically modified fish can better handle situations of food shortage and wavering water temperatures.

"It is probably due to the fact that genetically modified fish have a greater ability to compete and are better at converting food," said Sundström. These fish would out-compete wild breeds and possibly pose a hazard to human health.

The researchers are careful to note, however, that simulating natural environments within a laboratory setting is complicated - any predictions would therefore be largely unreliable.

"One option is to farm the transgenic fish on land, which would make escape impossible. At least fertile fish should be kept in a closed system," Sundström stated.

He advised that general international consent should be reached before commercial farming of transgenic species moves forward. No country has allowed the commercial farming of transgenic fish thus far. However, officials in both the EU and the US have been considering numerous applications for such operations.



A transgenic salmon fish.

(Photo: University of Gothenburg)

<http://www.fis.com/fis/worldnews/worldnews.asp?l=e&country=0&special=&monthyear=&day=&id=33672&ndb=1&df=0>

Use of Modified Live Vaccines in Aquaculture

Shoemaker, CA; Klesius, PH; Evans, JJ; & R. Arias, CR (2009).
J. World Aquaculture Soc.,
40(5): 573-585.

Abstract

Vaccination is an important disease management strategy used to maintain human and animal health worldwide. Vaccines developed for aquaculture have reduced antibiotic use in fish production. Original fish vaccines were bacterins (formalin-killed bacteria) delivered through immersion or injection that induced humoral (antibody) immunity. Next generation vaccines relied on multiple killed antigens delivered with an adjuvant to enhance vaccine effectiveness. Work in the 1990s showed the use of various strategies to develop modified live vaccines for use in fish.

A modified live vaccine is a live pathogen that has been rendered non-pathogenic or avirulent by physical, chemical, or genetic engineering methods. The modified live vaccine typically retains its ability to infect the host which allows for effective presentation of protective antigens to generate cellular immunity (CD4 or CD8 T-cell responses).

Modified live vaccines are advantageous in that they can be easily delivered (i.e., by immersion to young fish) and stimulate both humoral and cellular immunity of long duration. Disadvantages include issues with modified live vaccine safety to the host and environment. A successful modified live vaccine for use in warm water aquaculture is used to highlight the live vaccine strategy.

EMERGING ISSUES—CONTINUED**FISH COLUMNARIS DISEASE -
Fish farming can make diseases
more virulent, say researchers**

Date: Wed 4 Nov 2009

Source: Animal Pharm News [edited]
<http://www.animalpharmnews.com/>A ProMED-mail post
<<http://www.promedmail.org>>
ProMED-mail is a program of the
International Society for Infectious
Diseases <<http://www.isid.org>>

The conditions in which fish are farmed may be the reason infections such as columnaris disease are becoming increasingly virulent, as aquaculture creates selective pressures that encourage the most lethal strains of disease to thrive. That is the conclusion of a 23-year study conducted at a fish farm in Finland.

According to the research, led by Dr Katja Pulkkinen of the University of Jyväskylä and published in the journal Proceedings of the Royal Society, the high density of fish, the stress of the animals, and even the treatment administered to them have acted as selective pressures favouring the more virulent strains of the pathogens.

Columnaris disease, caused by the bacterium *Flavobacterium columnare*, leads to skin lesions, fin erosion, and gill necrosis and has become a serious problem in aquaculture. In the US, it is one of the biggest causes of death in farmed catfish, costing the industry millions of dollars a year.

The study shows how the conditions in which fish are farmed create selective pressures, which make the bacteria more virulent than in nature. In a natural environment, bacteria that cause severe symptoms (leading to the predation of the weakened animal) or that kill the host rapidly are usually removed from the gene pool, as extreme virulence harms their own ability to spread.

In fish tanks, however, these are precisely the strains of bacteria which thrive, as the bacteria continue to transmit to other animals from dead fish. In addition, healthy fish usually have direct contact with dead or severely weakened animals, something that would not happen in a natural environment.

The researchers also argue that the use of the antibiotic oxytetracycline, which started in 1992 in Finland, favoured the *F. columnare* strains with more severe symptoms. The drug is effective in animals with weaker symptoms, which can feed on and make use of the medication. It is less effective on the stronger strains of the pathogen infecting extremely debilitated animals, or upon the dead fish. In this way, these strains continue to spread while the milder ones are removed from the gene pool.

[Byline: Barbara Axt]

The Fish Vet

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Mobile aquatic veterinary service for ornamental & aquaculture - fish, crustacea & molluscs.

**NOAA Aquaculture Program
Updating Mailing List**

November 16, 2009

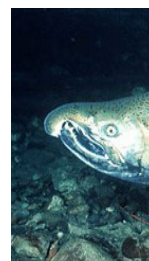
The NOAA Aquaculture Program is in the process of updating their mailing list and migrating to a new communications platform. One noted change to the communications structure is the creation of a NOAA Aquaculture Newsletter on a semi-monthly basis.

If you are interested in joining the NOAA Aquaculture Program mailing list, please forward your contact information to Chris Botnick at christopher.botnick@noaa.gov. Addresses, job titles, organizations, and phone numbers are not necessary, but are welcome if you would like to provide them.

An agency within the U.S. Department of Commerce, the National Oceanic and Atmospheric Administration (NOAA) has a long and rich tradition in aquaculture, from its support for cutting-edge science and research to federal policymaking. On a broad level, the program is designed to foster domestic marine aquaculture production to meet the growing demand for healthy seafood, create jobs for U.S. coastal communities, increase regional food supply and security, and help restore depleted commercial and recreational marine species.

The website for the NOAA Aquaculture Program is:

<http://aquaculture.noaa.gov>.



LEGISLATIVE & REGULATORY ISSUES

Aquatic Animal Drug Approval Partnership Program

"Working with our partners to conserve, protect and enhance the Nation's fishery resources by coordinating activities to obtain U.S. Food and Drug Administration approval for drugs, chemicals and therapeutants needed in aquaculture"

The latest edition of the AADAP Newsletter (Vol. 5-3) is now available to view or download for printing. To view, click on the following link and click on either the pdf or xps version link to download:

<http://www.fws.gov/fisheries/aadap/newsletter.htm>

Demonstration of target animal safety and efficacy of veterinary medicinal products intended for use in farmed finfish

The European Medicines Agency (EMA) has published this draft guideline on safety and efficacy of veterinary medicinal products, (EMA/CVMP/EWP/459868/2008-CONSULTATION).

The document is available at:

<http://www.emea.europa.eu/pdfs/vet/ewp/45986808en.pdf>

This document provides updated guidance on the preclinical and clinical aspects of the application procedure for those who seek approval of such products. The guideline replaces the "Efficacy of veterinary medicinal products for use in farmed aquatic species" and takes into account the development during recent years, and feedback obtained from users of the previous guideline which was last revised in 1994.

Please provide any comments you may have on this document to: vet-guidelines@emea.europa.eu, by using the template at:

<http://www.emea.europa.eu/pdfs/human/regaffair/submitcomment.doc>

Containment Standards for Facilities handling Aquatic Animal pathogens

The Canadian Food Inspection Agency (CFIA) is seeking comments on the Containment Standards for Facilities Handling Aquatic Animal Pathogens. The draft Standards are available for comment on the CFIA website until January 4, 2010.

Federal standards exist for laboratories handling human pathogens and for facilities handling animal pathogens. The new standards outline the unique physical and operational containment requirements for facilities working with aquatic animal pathogens.

The CFIA issues import permits for aquatic animal pathogens under the Health of Animals Act. Once the Standards come into effect, only facilities meeting the requirements will be issued an import permit. The Standards will also be used to provide guidance on the handling of aquatic animal pathogens found in Canada.

A multi-disciplinary group including representatives from the federal government, academia and industry have reviewed the Standards.

Comments on the draft Standards can be submitted to standardsnormes@inspection.gc.ca and will be accepted until January 4, 2010.

We would ask that anyone who submits comments on the wording of the draft Standards to provide suggested alternate wording where possible.

Once the consultation period is complete, the comments will be reviewed and any necessary revisions will be made. The Standards will then be finalized, with a transition period to follow until December 31, 2010. Following the transition period, the Standards will come into effect on January 1, 2011 and will be mandatory for facilities importing aquatic animal pathogens.

For more information, please contact:

Office of Biohazard Containment and Safety Canadian Food Inspection Agency, Standards and Guidelines standardsnormes@inspection.gc.ca
Telephone: 613-221-4219

The draft Standards, open for comments, is accessible at:

<http://www.inspection.gc.ca/english/sci/bio/anima/aqu/csfnicie.shtm>



LEGISLATIVE & REGULATORY ISSUES—CONTINUED**FDA to mandate processing of raw oysters**

UNITED STATES

Tuesday, October 20, 2009

US-grown oysters will be a hassle to find from May to October once the Food and Drug Administration (FDA) implements its new plan to reduce deaths from bacterial food poisoning.

FDA's Michael Taylor said the agency will fight the fatal *Vibrio vulnificus* by mandating post-production processing of Gulf-raised oysters to kill the bacteria.

Fresh, live, unprocessed oysters from Texas, Louisiana and Florida will no longer be legally sold from May to October as of 2011. The agency expects to avoid many deaths this way, USA Today reports.

In 2003, California banned the sale of unprocessed oysters from the Gulf. "The results were stark. Between 1991 and 2001, 40 deaths had occurred in the state due to *Vibrio vulnificus*," Taylor said. "Once post-harvest processing was required, the number of deaths dropped to zero. Seldom is the evidence on a food safety problem and solution so unambiguous."

See the source

(<http://tinyurl.com/yh68xdb>) for the full story.

**Source for Regulation of Aquaculture in the United States**

Aquaculture in the United States is regulated at both the federal and state level. At the federal level, leading agencies include the Food and Drug Administration ("FDA"), the Department of Agriculture ("USDA"), and the Environmental Protection Agency ("EPA").

These agencies regulate the part of the aquaculture industry that falls within the scope of their mandated duties. For example, the EPA is responsible for waste water permitting across all industries while the FDA covers food safety regulations and drug approvals.

Additionally, there are several other agencies and programs at the federal level involved more indirectly in aquaculture activities. These include the National Oceanic and Atmospheric Administration ("NOAA") in the Department of Commerce, the Center for Veterinary Medicine in the FDA, the Animal and Plant Health Inspection Service in the USDA, and the U.S. Fish and Wildlife Service ("FWS") of the Department of the Interior.

Finally, the Joint Subcommittee on Aquaculture ("JSA") was created by enactment of the National Aquaculture Act of 1980 and amended in 1985. The JSA was given the purpose of increasing the overall effectiveness and productivity of Federal aquaculture research, transfer, and assistance programs.

Often, regulations for aquaculture differ based on the position of the operation: inland, wetland, coastal and off-shore. Due mainly to environmental concerns, requirements for each type of operation are varied, with states administering permits based on their own specific rules. There are no consistent or universal laws and regulations of aquaculture among the several states. Thus, regulations can vary considerably between geographic locations.

To help find the applicable laws for aquaculture operations in the United States, **The National Aquaculture Law Center Website** was created by the University of Arkansas School of Law. On this website you will find a statutes and regulations, and even the following history of aquaculture:

Raising aquatic animals for the purpose of human consumption has been practiced for many centuries. Ancient Chinese records indicate that common carp was raised more than 4,000 years ago. Hieroglyphics in the tombs of the Pharaohs describe tilapia farming in ancient Egypt. The Romans built small ponds for raising fish. Although the practice of aquaculture has a long history, until recently there was no reason for intensive development of fish farming techniques. There were abundant supplies of fishes and shellfishes from natural sources. However, world population growth and increasing per capita consumption of fishes and shellfishes have resulted in over-exploitation of some species, stimulating the further development of the industry.

As a result of the growing demand and production, the 2005 Census of Aquaculture reported farm-level sales of \$1.1 billion, as a result of the industry's 11.7% growth over the previous seven years. Food fish including catfish, perch, salmon, hybrid striped bass, tilapia and trout accounted for 62 percent of those sales, followed by ornamental fish, such as koi and tropical fish, which each accounted for about 5 percent of sales. Baitfish and sportfish followed at 4% and 2%, respectively.

For more information go to:

<http://www.nationalaglawcenter.org/readingrooms/aquaculture/>.

AQUATIC CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT**North American Veterinary Conference**

January 16-20, 2010
Orlando, FL

Aquatic Veterinary Medicine Session
- Saturday, January 16, 2010

- * Dealing with Regulatory Red Tape
- * Behavioral Enrichment for the Aquarium
- * Practical Pathology for Aquatic Enthusiasts

This Session is targeted at veterinarians, veterinary students, veterinary technicians, and non-veterinary professionals. Topics during this session will include: Fish Health Inspections, Viral Hemorrhagic Septicemia (VHS), Fish Pathology/Histopathology, Marine Mammal Pathology/Histopathology, Interactive Abnormal vs. Normal Cases, and Aquatic Animal Behavior and Enrichment. Three case studies will also be presented.

CEPD Credit: 10 hours.

For more information:

www.tnavc.org/navc-conference/upcoming

**Annual Aquatic Medicine Seminar**

February, 19, 20 and 21, 2010
Las Vegas, Nevada

Shark Reef Aquarium will be hosting its Annual Aquatic Medicine Seminar on February, 19, 20 and 21, 2010 at Mandalay Bay Resort & Casino in Las Vegas, Nevada. The program consists of two full days of lecture on a wide-range of aquatic animal health and medicine topics with an emphasis on elasmobranchs.

In addition there is a wet lab on day three that provides a hands-on learning experience. Attendance for the wet lab is limited to 30 participants based on early registration.

For additional information please contact **Jack Jewell** at (702) 632-4560 or e-mail: mjjewell@mandalaybay.com

For additional information you are also welcome to visit our web site at Sharkreef.com

**Sea Lice 2010 - 8th International Sea Lice Conference**

May 9-12, 2010 -
The Inn at Laurel Point,
Victoria, BC, Canada

Presentation: Sea Lice Biology and Emerging Issues—

Dr. Geoff Boxshall joined the Natural History Museum in London in 1974. His research has focused on the systematics, functional morphology and evolution of copepods and related crustaceans, extending across the whole range of life styles from parasites to plankton. He specialises in research on the systematics and biology of parasitic crustaceans.

He was elected Fellow of The Royal Society in 1994 and has won numerous awards recognizing his work. He has published extensively including over 180 scientific papers and has co-authored several books including Copepod Evolution Dictionary of Ecology, Evolution and Systematics (2nd edition, 1998), The Cambridge Illustrated Dictionary of Natural History (in 1987) and An Introduction to Copepod Diversity (in 2004).

Students are an important part of Sea Lice 2010 and are encouraged to attend and present their research. Awards from industry, government, and individual sponsors will be provided to students to offset travel costs according to need and the quality of the conference presentation.

See www.sealice2010.com for more Program information

Join us as a conference sponsor - contact Linda Hiemstra, email: sealice2010@shaw.ca

For more Aquatic Education opportunities, see the last issue of AVN and review the listings on the WAVMA.org website.

ANNOUNCING: NATIONAL FORUM FOR USERS AND MAKERS OF SPAWNING AIDS

AQUACULTURE 2010
San Diego, California, USA
March 1-5, 2010

The Working Group on Aquaculture Drugs, Chemicals, and Biologics* (WG) has recognized the important role that spawning aids (natural and synthetic hormone preparations used to induce or synchronize spawning in captivity) play in broodstock management in public and private aquaculture. Increasing reproductive efficiency is critical to sustaining and improving the economic and biological success of fish production.

Although there is interest in a number of different spawning aids, ranging from crude pituitary extracts to fully synthetic peptides, there is currently only one approved for use in foodfish in the United States—Chorulon.

Within current regulations, numerous studies must be completed before a drug can be approved and made available. Unfortunately, the cost and complexities of conducting research trials with broodfish has placed the bar out of reach for most spawning aids.

Regulators have limited discretion in the drug approval process. Researchers have limited ability to conduct multiple controlled studies with mature fish. Drug manufacturers are limited by the business sense of making large research and development investments for relatively small markets. In the middle are the fish farmers and culturists, limited by their ability to spawn fish effectively.

Narrowing the list of candidate spawning aids to those that will 1) meet the needs of culturists, and 2) satisfy regulatory requirements is a critical objective to focus limited resources. In pursuit of this objective, the WG is opening a dialogue with private and public aquaculturists, public data-generating partners and other researchers, drug manufacturers, and regulators. This forum will be held concurrently with the special session:

“Advances in Broodstock Management”, at AQUACULTURE 2010, March 1-5, in San Diego, California.

This program will begin with technical presentations on strategies to enhance reproductive performance in aquaculture, and conclude with a panel discussion and forum to identify priority spawning aids that are most likely to gain approval and market success.

We are currently soliciting presentations to

- review current data available on spawning aids for species of interest
- describe collaborative approaches to generating drug approval information
- identify research facilities and opportunities to conduct drug approval studies
- help provide information to regulatory agencies to improve the regulatory process

We strongly encourage anyone with a vested interest in the current and future availability of spawning aids to attend this important program. For more information about participating in “Advances in Broodstock Management”, please contact Jesse Trushenski (saluski@siu.edu) or Heidi Lewis (hal7e7@siu.edu)

*The Working Group on Aquaculture Drugs, Chemicals, and Biologics is a multi-stakeholder group formed under the auspices of the Fish Culture Section of the American Fisheries Society to provide a public forum for stakeholders to express their support of, and contribution to the development, approval, availability, and judicious use of drugs, chemicals and biologics for use in aquaculture. The WG was created to facilitate communication and cooperation between public and private aquaculture interests, academic and agency researchers, and regulators to address needs and issues associated with the approval and use of aquatic animal drugs and is open to participants representing any of these stakeholder groups.

AQUATIC CONTINUING EDUCATION—CONTINUED**AQUAVET I & II**

May and June 2010

The University of Pennsylvania School of Veterinary Medicine and the College of Veterinary Medicine at Cornell University are pleased to announce the 2010 AQUAVET I & II Programs. They are aquatic veterinary medicine education programs that currently consist of two courses that will be presented this year at Stony Brook Southampton in Long Island, NY.

AQUAVET I: An Introduction to Aquatic Veterinary Medicine is a 4-week course (31 May - 25 June 2010) intended primarily for veterinary students.

AQUAVET II: Comparative Pathology of Aquatic Animals is a 2-week course (31 May - 11 June 2010) that is oriented toward the pathology of diseases of aquatic invertebrates and fish that are used in biomedical research, encountered in display aquaria and are of importance in commercial aquaculture.

Veterinary students can receive credits for the course and graduate veterinarians can receive CE credits.

Applications for admission will be due by January 30, 2010 and may be obtained by accessing the program website from which the application form may be downloaded for completion and submission by mail.

Additional information may be found at <http://www.aquavet.info>.

**4th Keystone Veterinary Conference**

August 12-15, 2010
Hershey Lodge & Convention Center
Hershey, PA

Keystone Veterinary Conference offers up to 30 hours of continuing education credit over 4 days in many areas of veterinary medicine. A special exotics track (12 CE hours total) will be offered this year featuring Dr. Gregory Lewbart, Professor of Aquatic Medicine at North Carolina State University, College of Veterinary Medicine. Dr. Lewbart is a Diplomate of the American College of Zoological Medicine and was named 2007 Exotic DVM of the Year by Exotic DVM Magazine. He is an author on over 90 popular and scientific articles about invertebrates, fishes, amphibians and reptiles and speaks nationally and internationally on these subjects. He has also authored or co-authored 17 book chapters related to veterinary medicine of the above-mentioned taxonomic groups and edited or co-edited three veterinary books.

Thursday, August 12, 2010

Ornamental Fish Medicine I: The clinician will be introduced to the basics of the ornamental fish industry including details about aquaculture, packing, shipping, and preventive medicine.

Ornamental Fish Medicine II: This talk will include practical information on water quality analysis, history taking, anesthesia, analgesia, and important and rewarding diagnostic techniques.

Ornamental Fish Medicine III: This presentation will focus on clinical cases in a problem-based format and will include practical information on infectious diseases, pharmacology, advanced diagnostic techniques, and surgery.

3 additional hours will be presented; topics to be determined.

Friday, August 13, 2010

Introduction to Invertebrate Medicine: The clinician will be introduced to the field of invertebrate zoology with emphasis on those taxa most commonly seen in captive situations. Options and opportunities for veterinarians interested in this field will be elaborated upon.

Aquatic Invertebrate Medicine and Surgery: This talk will focus on specific diseases, diagnostic techniques, and treatment options for aquatic invertebrates including jellyfishes, corals, mollusks (snails, clams, oysters, squid, and octopi), horseshoe crabs, and crustaceans (shrimp, lobsters, crabs, and hermit crabs).

Terrestrial Invertebrate Medicine and Surgery: This talk will focus on specific diseases, diagnostic techniques, and treatment options for terrestrial invertebrates including earthworms, spiders, scorpions, millipedes, and insects.

Invertebrate Animal Wet Lab

This hands-on wet lab will feature a number of common and popular invertebrates including mollusks, spiders, crustaceans and insects. Participants will become familiar with the anatomy, physiology, and husbandry of this diverse assemblage of animals. Anesthetic, diagnostic, and treatment techniques will be taught and applied.

Conference information and registration will be posted in February, 2010 at www.pavma.org and www.keystonevetconference.org.

AQUATIC CONTINUING EDUCATION—CONTINUED

Sixth International Symposium on Aquatic Animal Health (ISAAH-6)

Sept. 5 - 9, 2010,
Tampa, Florida, USA

You are warmly invited to participate in the sixth International Symposium on Aquatic Animal Health (ISAAH-6), September 5 – 9 2010, in Tampa, Florida, USA. The symposium will address present practices and new initiatives in aquatic animal health focusing on infectious diseases, wild stock, aquaculture development, planning and emergency response systems, interaction of diseases between wild and farmed stocks, and outcomes of physical, chemical and biological environmental stress.

The previous international symposia on aquatic animal health have attracted strong international support, with up to 425 participants from 35 countries!

The symposium will provide an inclusive forum for presentation of research, management, and policy issues related to the health of aquatic animals, whether wild, farmed or held on exhibit. The broadest range of animals is considered, from invertebrates to fish, amphibians, chelonians and marine mammals. The four days of scientific sessions will include invited plenary lectures and special topic sessions, parallel sessions of oral presentations, a dedicated half-day poster session, a student workshop, a diagnostic challenges session, and an exhibits area for books and informational displays from participating scientific organizations.

entific organizations.

The symposium venue will be the beautiful Tampa Marriott Waterside Hotel, which features elegant accommodations, a choice of restaurants, an outdoor pool, and waterfront terraces.

Base room rates have been specially-negotiated at \$129 USD, single or double. Tampa is an eclectic city, with many nearby attractions, and is served by an excellent international airport.

The symposium will be hosted by the American Fisheries Society - Fish Health Section, and will be supported by the Emerging Pathogens Institute, University of Florida. The symposium organizers are Drs. Andrew Kane and Sarah Poynton.

More information is available on symposium website (<http://aquaticpath.epi.ufl.edu/isaah6>).

2010 IAAAM Conference **May 8-12, 2010**

The 41st IAAAM Meeting and Conference is scheduled at the Marriott Vancouver Pinnacle Downtown and is being hosted by the Vancouver Aquarium.

Abstract Submission Form (deadline February 12, 2010)

For more details go to www.IAAAM.org.



2010 Dues Reminder

The WAVMA Membership year begins January 1 of each year. Shortly membership dues notices will be sent out to all present and past member. Please complete and submit them to the Treasurer at your earliest convenience, or use the form at the end of this newsletter or on the WAVMA website. Expanded member-only programs are anticipated for 2010 and Members are reminded that to receive all membership benefits, dues must be paid before April 1 of each year. Some of the initiatives to benefit members planned for 2010 and beyond include:

- The 2010 WAVMA Annual General Meeting and Aquatic Veterinary Conference in Greece, and a similar one in South Africa in 2011.
- Clinically relevant WAVMA sponsored or coordinated CEPD meetings in many locations, including workshops building on the success of the IABC (www.IABCConference.org).
- A revised WAVMA website with Members-only access to Board and Committee matters, online CEPD for veterinary credit, listings of relevant meetings around the world, emerging legislation and regulations, discussion listservs, and much more.
- Clarifying and advocating the roles and responsibilities of aquatic veterinarians, developing a system to recognize and credential experienced aquatic veterinarians, and examining a system for Board Certification of aquatic veterinarians as specialists.
- Initiating the development of an International Journal of Aquatic Veterinary Medicine.

Don't lose out, remember to renew your membership.

AQUATIC CONTINUING EDUCATION—CONTINUED**26th Caribbean Veterinary Medical Association Conference****“Promoting Animal Health and Welfare for Sustainable Human Development”**

Ocho Rios, Jamaica.
November 3-6, 2010.

The CbVMA conference is designed for veterinarians, senior veterinary students and allied professionals who are interested in improving the health and welfare of all animals: companion animals, farm animals, horses, marine mammals and more. These animals represent one side of an ever more complex and difficult association between animals and man. This tenuous relationship exists in the “Developing World” in an even more stark juxtaposition than in the “First World”. The challenge of this conference is to demonstrate how improving the well-being of animals benefits people whether they live in the First World or the Third World.

The biennial CbVMA conferences are the premier meeting venues for Caribbean veterinarians. They bring together colleagues from almost all the Islands and from parts of Central and South America. There was also a time when, through the Commonwealth, hundreds of Canadian veterinarians participated in these conferences. In 2010 we are not only inviting back to the Caribbean our Canadian colleagues, but we are actively encouraging veterinarians from all over the world to attend. This is only natural now, as with four international veterinary schools situated in the English-speaking Caribbean there are thousands of veterinarians practicing throughout the world who have received their training in this region.

The CbVMA 2010 Scientific Program will feature regionally and internationally renowned speakers. For four days leading experts in the veterinary profession will deliver information on important veterinary topics that span the range of species and the diversity of interests in veterinary medicine.

And it goes without saying that if you are in the Caribbean you're going to have fun. The Conference will be at Jamaica's largest conference hotel, the Sunset Jamaica Grande Resort and Spa. It's an “all-inclusive” family hotel so you can bring your family, and after you check in and register, you can do just about anything you want without the payment of an additional fee.

We will not be as big as some of the veterinary conferences that are to be found in North America and elsewhere. However, you will not experience a nicer place to learn and a closer feeling of family, than you will when you join us in Ocho Rios, Jamaica, between November 3 and November 6, 2010.

Symposia/Wet labs:

The Scientific Committee is open to receive proposals and/or sponsorship for symposia and wet labs that relate to the general conference theme. Sessions will last 50 minutes and will consist of a maximum of three presentations with a short time for discussion at the end of the session.

Major speakers will have the entire 50 minutes to make their presentations. It is desirable that participants of symposia should be self-financed although funding will be available for key-note speakers. The Wet Labs will cover a variety of topics of interest to veterinarians of all ages and levels of experience. Small groups of veterinarians will be accommodated in each Wet Lab so that each individual will be involved in the activity.

DEADLINE FOR SUBMISSION OF ABSTRACTS: MAY 31, 2010

Participants are invited to submit abstracts of proposed oral or poster presentations to the CbVMA Conference Scientific Committee. Oral presentations should not be more than 40 minutes long. Abstracts should contain title of the presentation and a one paragraph summary of the presentation. Authors will be notified regarding Abstract acceptance. Accepted abstracts will be printed in the Conference proceedings that will be distributed at the Congress. Please indicate if you are submitting your abstract for oral or poster presentation.

For recommending Symposia, Wet labs and submission of Abstracts:

Chairman,
Scientific Committee
CbVMA Conference Secretariat
P.O. Box 1111, Kingston 8,
Jamaica
Email: scientificchair@cbvma.org

For more information on the **26th Caribbean Veterinary Medical Association Conference** go to <http://cbvma.org>.



AQUATIC VETERINARY JOB OPPORTUNITIES

POST-DOCTORAL POSITION IN AQUATIC VIROLOGY RESEARCH

A Post-doctoral position in aquatic virology research is available starting January 2, 2010, in the Department of Pathology and Microbiology at the Atlantic Veterinary College, University of Prince Edward Island.

Funding is available for 2 years with possible continuation. The successful candidate will work in the Aquatic Virology Collaborating Centre (AqVCC), which consists of a collaborative multi-disciplinary group of researchers concerned about eukaryotic viruses of aquatic origin (such as fish, birds and insects) that threaten food security or animal or public health.

AqVCC activities encompass both basic and applied research focused on molecular profiling of virus-cell and virus-host interactions and virus evolution related to emerging infectious diseases, and predicted to be of strategic importance in delivering ef-

fective tools (diagnostic assays, vaccines and antiviral drugs) for the improvement of animal and human health in the next 5-10 years.

A DVM and/or PhD or equivalent degrees are required for consideration. The preferred person would be uniquely qualified in viro-immunology and will be familiar with:

- (1) classical and molecular methods of (a) virus detection and quantitation, and (b) host response detection and quantitation;
- (2) recombinant protein expression and characterization;
- (3) cell culture techniques;
- (4) virus propagation methods;
- (5) serology techniques; and,
- (6) use and care of experimental animals in research. Ability to write research grant proposals and scientific manuscripts is an asset.

Applications will be accepted until November 23, 2009 or until a suitable candidate is found. The starting date is negotiable but will not be later than February 01, 2010. The salary is commensurate with qualifications.

To apply, please submit a letter detailing your qualifications, experience and research interest, and a current CV, and arrange to have 3 letters of reference sent to:

Dr. Frederick S.B. Kibenge,
Chair of Department of Pathology
and Microbiology,
Atlantic Veterinary College,
University of Prince Edward Island,
550 University Avenue,
Charlottetown, PEI C1A 4P3,
Canada,
kibenge@upe.ca,
or FAX: (902) 566-0851.

In accordance with Canadian immigration requirements, all qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be given priority. UPEI is committed to the principle of equity in employment.



The Marine Mammal Center

Veterinary Internship Position
Deadline for applications is 12/30/09.

The Marine Mammal Center in collaboration with the University of California at Davis has an exciting opportunity for a Veterinary Intern, based in Sausalito at The Marine Mammal Center. This position is scheduled to start July 1, 2010 and will last for one year.

This position requires a DVM degree or equivalent and previous marine mammal or wildlife experience is desirable. Preference will be given to

individuals that possess at least one year of clinical veterinary experience.

The Marine Mammal Center veterinary staff includes two full-time veterinarians, three veterinary technicians, a medical technologist and research staff.

The Veterinary Intern's responsibilities include assisting the veterinary medical staff in providing medical management of a large number of stranded marine mammals (mostly pinnipeds); performing postmortem examinations, sample-taking for various research projects, and record-keeping. A research paper or case report should be completed during the internship.



If qualified, send your CV, letter of intent and three professional references to:

Dr. William Van Bonn,
The Marine Mammal Center,
2000 Bunker Road,
Sausalito, CA 94965-2609.
E-mail: vanbonnb@tmmc.org.

For more information on the Marine Mammal Center go to www.tmmc.org.

AQUATIC VETERINARY JOB OPPORTUNITIES—CONTINUED**Shedd Aquarium,
Chicago, IL**

Title: **Veterinarian**
 Status: **Full-time, regular**
 Department: **Animal Health**

Duties and Responsibilities:

- Plays a key role in the implementation of the aquarium's preventative veterinary medical programs, and helps develop and implement aquatic animal health conservation and research projects. Provides urgent, emergent and on-call care to the Aquarium's large and diverse collection of fish, mammals, birds, reptiles and invertebrates. Responsibilities include: case assessment, diagnostics, safe immobilization techniques, development and implementation of treatment plans and surgery.
- Facilitates the training of the veterinary residents in the Chicago Zoological and Aquatic Animal Residency program in concert with Lincoln Park Zoo, Brookfield Zoo and University of Illinois as well as rotating veterinary student preceptors.
- Gives guidance to the laboratory technologists/technicians in coordination with the Division Directors. Facilitates training of staff in technical aspects of veterinary medicine.
- With Division Directors, develops and continuously refines policies and procedures for the safe operations within the veterinary services department and with husbandry departments, as appropriate.
- Serves on teams and aquarium working groups and attends weekly husbandry management meetings to represent the needs and interests of the Animal Health division
- Performs gross necropsies and post-mortem diagnostics in coordination with pathologists from the University of Illinois and on-site veterinary technical staff.
 Performs other duties as assigned.

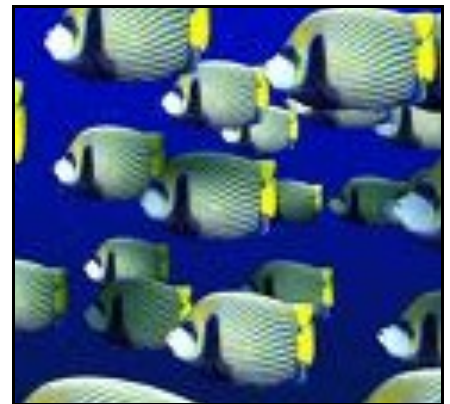
Job Requirements:

- Education/licensing – Applicant must hold a DVM/VMD degree from an AVMA accredited program and licensure, or eligibility for licensure by hire date, in the state of Illinois. Veterinarian must possess, or be eligible to possess, IL and DEA controlled substance licenses and possess National Veterinary Accreditation from USDA-APHIS Veterinary Services.
- Work Experience – Experience in aquatic animal medicine required. Work experience in a zoological or aquarium setting strongly preferred. Experience with marine mammal medicine, husbandry with aquatic species, and conservation field work is preferred. Preference will also be given to candidates who have completed an internship, residency or who have been employed at least three years in an aquarium or zoological clinical setting.
- Special Knowledge and Skills - Significant, demonstrated interest in the field of zoological/aquatic animal medicine is required. Experience in conservation field work and familiarity with advanced imaging diagnostics (digital radiography, ultrasonography, endoscopy) and minimally invasive surgery a plus.
- Personal Characteristics – Strong organizational skills required. Strong written and verbal communication skills are imperative. This position will require great interpersonal skills and highly effective time management skills.
- Schedule – This position requires flexibility in schedules and on-call availability. Nights and weekends may be required.
 Applicant must have proof of a negative TB test, or proof of negative tuberculosis status at the time of employment and provide proof of a current tetanus vaccine.

How to Apply:

Please submit your resume to:
 Shedd Aquarium, Human Resources
 1200 S. Lakeshore Drive
 Chicago, IL 60605
 fax 312-663-0971
 or email:
jobs@shedd Aquarium.org

Based on Shedd Aquarium's commitment to the environment, electronic versions of resumes are preferred.



AQUATIC VETERINARY JOB OPPORTUNITIES—CONTINUED**VETERINARIANS REQUIRED**

A private Veterinary Hospital in Singapore with World Class Infrastructure and Technology has openings available for a Fish Vet (need not be a specialist in aquatic animal health, but must have a minimum of two years of experience in fish medicine and surgery). The Hospital is comprehensively equipped, and includes in-house pathology, ultrasound, im3 dental machine, endoscope, ECG, blood pressure monitor, anaesthetics monitors, nebulizer, defibrillator, and such. The Hospital has set up a Diagnostic, Imaging, and Lab Services Centre nearby which houses its GE Bright Speed CT scanner, Digital X-ray, extended labs, isolation wards, a state of the art mortuary, etc.

Successful applicants must show a strong concern for animal welfare and equally must exhibit a high level of veterinary care. Applicants with team playing and team building skills will invite a heightened interest from the Veterinary Hospital. Amiable and accommodative personalities will find the work environment welcoming. The Hospital's hours are from 9.30 am to 7.30 pm. Night duties are applicable. Hours will be scheduled on the basis of a 5 day work week.

Remuneration is based on experience and skill, with the usual perks. Singapore is very expat friendly and has low tax rates.

Pictures of part of the facilities can be found at the following address: <http://www.h2hvet.com>

If you are interested in joining our team, please email your CV to: vetjobs@h2hvet.com
Heart2Heart Veterinary Hospital
24-26 Jalan Lokam
Tai Keng Court
Singapore 537870

**Assistant/Associate Professor
Biomedical Sciences**

University of Prince Edward Island,
Atlantic Veterinary College.
Competition #26A09; see
www.upei.ca/humanres/competition/academic.

The Department of Biomedical Sciences, Atlantic Veterinary College, invites applications for a full-time, tenure-track appointment. The successful candidate will be expected to have a strong record of independent, externally funded research and provide high quality instruction in an area of strength within the Department, to both undergraduate (DVM) and graduate students. Minimal qualifications include a Ph.D. and relevant Veterinary teaching experience.

The Atlantic Veterinary College (AVC) at the University of Prince Edward Island (UPEI) is a regional centre of expertise for research in Veterinary Medicine. The AVC has strength in Comparative Medicine, Aquatic Species and Population Medicine. The College is accredited by the AVMA/CVMA, has modern, well-equipped facilities and is located in a semi-rural setting. Further details may be obtained at: <http://www.upei.ca/~avc>

Applicants should include a current CV, statement of research and teaching goals and contact information for at least 3 references. Applications will be accepted until December 15, 2009 or until a suitable candidate is identified. Please forward applications to:

Dr. Tarek Saleh, Chair,
Department of Biomedical Sciences
University of Prince Edward Island
Atlantic Veterinary College
550 University Avenue
Charlottetown, PE Island,
CANADA C1A 4P3
Tel.: 902-566-0819
Fax: 902-566-0832
E-mail: tsaleh@upei.ca

Senior Lecturer Aquaculture

University of Adelaide,
South Australia –
Job Reference Number: 15557

We are seeking a Veterinarian or Aquaculture Scientist, based at the Roseworthy campus, who is eligible to practice in South Australia, to teach and lead research in Aquaculture.

You should have:

- A higher degree, preferably at the doctorate level, in Aquaculture, Fisheries, Marine Biology or Science or a related discipline.
- Evidence of contributions to the teaching effort of a school in Aquaculture at the tertiary level.
- A record of research based publication and evidence of the ability to attract research funding.
- Strong interpersonal skills and demonstrated ability to work collaboratively, as a member of teaching and research teams.

A Veterinary qualification is highly desirable. Salary: (Level B) \$73,228 - \$86,960 per annum or (Level C) \$89,700 - \$103,436 per annum (AUSTRALIAN DOLLARS) plus an employer superannuation contribution of 17%. This tenurable position is available from January 2010. Please refer to the relevant selection criteria at: <http://www.adelaide.edu.au/jobs> or, alternatively, contact Mrs. Mandy Holloway, HR Administrator, School of Veterinary Sciences: mandy.holloway@adelaide.edu.au; +61 (8) 8303 7740.

Your application must include your résumé/Curriculum Vitae, address the selection criteria; quote the relevant reference number; include residency status; and, include the names, addresses and/or email details of three references. Email applications to: vanessa.jones@adelaide.edu.au or forward in duplicate, to: Ms. Vanessa Jones, Human Resources Department, The University of Adelaide, South Australia 5005

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## SPONSORS AND SUPPORTERS



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AND LET THEM KNOW YOU APPRECIATE  
THEIR SUPPORT OF THE WAVMA!**



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[eathan@vet.uth.gr](mailto:eathan@vet.uth.gr)

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[heronpisces@btinternet.com](mailto:heronpisces@btinternet.com)

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KOI PHOTO BY NICK SAINT-ERNE, DVM

**Committee Chairs**

**Aquatic Veterinary Education Committee-** Dr Scott Weber. E-mail: [fishdoc@charter.net](mailto:fishdoc@charter.net)

**Budget and Finance Committee-** Dr Dušan Palić. E-mail: [dulep@iastate.edu](mailto:dulep@iastate.edu)

**Communications Committee-** Dr Nick Saint-Erne. E-mail: [saint-erne@g.com](mailto:saint-erne@g.com)

**Credentialing Committee-** Dr Ron Roberts. E-mail: [heronpisces@btinternet.com](mailto:heronpisces@btinternet.com)

**Ethics and Governance Committee-** Dr Peter Merrill. E-mail: [wetvet@comcast.net](mailto:wetvet@comcast.net)

**Meetings Committee-** Dr Julius Tepper. E-mail: [cypcarpio@aol.com](mailto:cypcarpio@aol.com)



A well  
 planted  
 display  
 aquarium  
 built into  
 a wall –

Photo by  
 Nick  
 Saint-Erne



# World Aquatic Veterinary Medical Association

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

## 2009 MEMBERSHIP APPLICATION

### INITIAL APPLICATION or RENEWAL (circle one)

For your convenience please complete and mail with the correct remittance (in US\$), or credit card information, to:

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

#### Credit Card Payments Visa; or Master Card

Name on Card \_\_\_\_\_

Card Number \_\_\_\_\_

Expiry Date Mo / Yr \_\_\_\_\_ Card Security Code \_\_\_\_\_

Signature \_\_\_\_\_

For e-Copies - typing your name will indicate your signature

Complete **all mandatory fields marked with an \***.  
Please be as comprehensive as possible.

#### Contact Information

\*Name (First, Middle, Last) \_\_\_\_\_ Date \_\_\_\_\_

Business/Organization (if applicable) \_\_\_\_\_ Position/Title \_\_\_\_\_

\*Mailing Address \_\_\_\_\_

\*City \_\_\_\_\_, \*State/ Province/ Canton/ County (UK) \_\_\_\_\_

\*Zip/Postal Code \_\_\_\_\_, \*Country \_\_\_\_\_

\*Primary Phone \_\_\_\_\_ Is this a business ? /home ? or /cell/mobile ?

Secondary Phone \_\_\_\_\_ Is this a business ? / home ? or /cell/mobile ?

\*Primary e-Mail \_\_\_\_\_; Secondary e-Mail \_\_\_\_\_

(Secondary e-Mail addresses will be used if the primary address becomes non-functional)

#### **Check one membership category <sup>1</sup>**

**Full Member** (US\$100) **Student Member** (US\$50)

Primary Veterinary Degree (as awarded, e.g. DVM; VMD; BVMS; DEDV; Dr. vet. med.; MVZ, etc) \_\_\_\_\_

Year \_\_\_\_\_; University \_\_\_\_\_; City \_\_\_\_\_; Country \_\_\_\_\_

**Veterinary Technician/Nurse Member** (US\$50)

Name of supervising veterinarian \_\_\_\_\_; Phone \_\_\_\_\_; e-mail \_\_\_\_\_

**Affiliate Member** (US\$100)

\*Degree \_\_\_\_\_; \*Year \_\_\_\_\_; \*University \_\_\_\_\_; \*City \_\_\_\_\_, \*Country \_\_\_\_\_

**Allied Veterinary Organization Member** (US\$500)

\*Total number of current members \_\_\_\_\_; \*Number (or %) of members that are *veterinarians* \_\_\_\_\_;

\*Estimated number of members involved with *aquatic veterinary medicine* (any species/disciplines) \_\_\_\_\_

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

#### **<sup>1</sup> Membership Categories & Privileges**

**Full Member**—individual veterinarians that have graduated from veterinary Schools, Colleges or Universities recognized by any country as being a prerequisite for practicing veterinary medicine. Full Members are eligible to be nominated and serve as WAVMA Officers, and to serve on any WAVMA Committees.

**Allied Veterinary Organization Member**—legally formed organizations or entities (association/society) whose members are predominantly veterinarians. Allied Veterinary Organization Members are eligible to appoint a delegate and alternate delegate (must be WAVMA Full Members in good standing) to serve on the WAVMA Advisory Council.

**Student Member**—students enrolled fulltime in veterinary Schools, Colleges or Universities recognized by any country as being a prerequisite for practicing veterinary medicine. Student Members are entitled to all the rights and privileges of Full Members, except to serve as an Officer of the Association, or to vote in any general election, referendum or ballot of the association's Full Members.

**Veterinary Technician/Nurse Member**—any non-veterinarian that is employed to assist in the legal practice of veterinary medicine, while under the direct supervision or direction of a veterinarian. Veterinary Technician/Nurse Members are entitled to all the rights and privileges of Full Members, except to serve in any voting capacity on any committees, councils, trusts, boards, liaisons or other entity that may be formed to do Association business.

**Affiliate Member**—any non-veterinarian that is a graduate of a nationally recognised university or institution of higher education, and who supports the Mission and Objectives of the Association. Affiliate Members are entitled to all the rights and privileges Student Members, except to serve in any voting capacity on any committees, councils, trusts, boards, liaisons or other entity that may be formed to do Association business.

## World Aquatic Veterinary Medical Association

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

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

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



### WHO ARE WE

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

### The purpose of the World Aquatic Veterinary Medical Association is:

- To serve aquatic veterinary medicine practitioners of many disciplines and backgrounds by developing programs to support and sustain members, and the aquatic species industries that they serve.
- To identify, foster and strengthen professional interactions among aquatic medical practitioners and other organizations around the world.
- To be an advocate for, develop guidance on, and promote the advancement of the science, ethics and professional aspects of aquatic animal medicine within the veterinary profession and a wider audience.
- To optimally position and advance the discipline of aquatic veterinary medicine, and support the practice of aquatic veterinary medicine in all countries.

We're on the Web:  
[WWW.WAVMA.org](http://WWW.WAVMA.org)

*The ideas presented in this publication express the views and opinions of the authors, may not reflect the view of WAVMA, and should not be implied as WAVMA recommendations or endorsements unless explicitly stated. Information related to the practice of veterinary medicine should only be used within an established valid Veterinary-Patient-Client Relationship.*