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Aquatic Vet News

World Aquatic Veterinary
Medical Association

Volume 4; Number 2

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CALL FOR WAVMA OFFICER NOMINATIONS

Have you ever aspired to be a leader in aquatic veterinary medicine and pave or blaze the way forward in aquatic veterinary medicine, or do you know someone who really fits this billing? **Now is your chance!**

Nominations (self-nominations are accepted) are now open for these WAVMA 2011 Positions:

- **President-elect**
- **Secretary**
- **Treasurer**
- **Director-at-Large** (2 positions)

Please note: because WAVMA's global membership is expanding so rapidly, the Executive Board is considering increasing and "regionalizing" the Directors-at-Large positions (representing different geographical areas of the world) to ensure well balanced global aquatic veterinary perspectives and representation, and to incorporate these into Membership programs and services. The decision will probably be dependent on the number and geographical location of nominations received.

Please take this opportunity to offer yourself or encourage other suitable individuals to [fill out, and submit the nomination form on the WAVMA website by July 1, 2010.](#)

All nominations should be e-mailed to the Secretary -
chris.walster@onlinevets.co.uk.

The WAVMA Bylaws require that all nominees must be Full Members "in good standing" (have paid their 2010 membership dues).

Information on candidates will be distributed, along with absentee ballots for those unable to attend the 2010 WAVMA Annual General Meeting on July 14 (in Athens, Greece).

Elected Officers and Directors will participate as non-voting members of the Executive Board through December 31, 2010, and will assume their 2011 positions January 1, 2011.

Contributors to this issue of
Aquatic Vet News:

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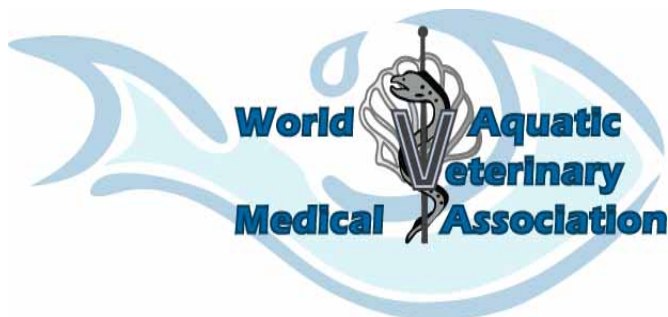
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Editor's Note

Wow! WAVMA Membership Growth

Look at all of the names on page 3 of new WAVMA members! This shows we are growing and attracting new members from around the globe. The question is, how many of these new members did YOU introduce to WAVMA?

Now before you think I am picking on you, the answer for myself would be: none. But why not? I am in communication with colleagues on almost a daily basis. I should be sure to ask each of them if they are a WAVMA member. And if they are not, share with them the information about WAVMA. Even providing a copy of this newsletter to other veterinarians is a start. There is an application form in every issue (page 25 in this one). I hope you will do the same with your colleagues.

Secondly, once a veterinarian is a member of WAVMA, let's encourage collaboration. See page 9 for an article by NEW WAVMA MEMBER Dr. **Devon Dublin** who is from Guyana, but is doing post-graduate studies in Japan. Devon is multilingual and multitalented—he has also volunteered as a member of the Communications Committee, so expect more articles from him in future issues.

Talk about being an international organization! Let's also welcome the new members from Greece and Turkey. I am looking forward to meeting them at the WAVMA conference in Greece next month! Hope to see you there, too.

Nick Saint-Erne, DVM

Aquatic Veterinary News Editor

saint-erne@Q.com

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Aquatic Veterinary News

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saint-erne@Q.com

Executive Reports

President's Report

The Annual General Meeting is coming up soon. An important part of the Annual General Meeting is the election of new officers for 2011. One of the benefits of being a member of an organization like WAVMA is the ability to participate in the direction of the Association. We are looking for individuals to contribute their talents in a number of leadership positions. Please consider nominating yourself or others for positions on the WAVMA Executive Board. Fill out and submit the nomination form found on the www.WAVMA.org website.

Welcome also to the new WAVMA members listed on this page. We are excited about the new members joining WAVMA, especially all those who are attending the International Aquatic Veterinary Conference in Athens. Thanks to all of you who are participating by lecturing, working behind the scenes in getting the conference organized, or just attending. It will be a great event and good place to meet your colleagues in Aquatic Veterinary Medicine.

Fotini Athanassopoulou DVM, PhD, MRCVS

WAVMA President 2010

eathan@vet.uth.gr

WAVMA New Members

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

Full Members:

Ioannis Alexiou (Greece)
 Konstantina Bitchava (Greece)
 Kalliopi Chatzilari (Greece)
 Konstantia Christopoulou (Greece)
 Ioanna Dodou (Greece)
 Devon Dublin (Guyana)
 Chrysoula Fragouli (Greece)
 Thomos Georgios (Greece)
 Athina Ioannou (Greece)
 Roger Kragstad (USA)
 Maria Mante (Greece)
 Pavlos Maroulis (Greece)
 Thomas Politis (Greece)
 Dimitros Tagkalis (Greece)

WAVMA New Members-continued

Student Members:

Isil Aytemiz (Turkey)
 Tracie Baker (USA)
 Michelle Barbieri (USA)
 Rebeca Csomos (USA)
 Bridget Cummings (USA)
 Erdem Danyer (Turkey)
 Chelsea Fitzsimons-Diaz (USA)
 Timothy Jones (USA)
 Aliya McCullough (USA)
 Marilyn McDowall (USA)
 Linda Pirie (USA)
 Jillian Schwartz (USA)
 Babak Shoabi Omrani (Iran)
 Jonas Vaitkus (USA)
 Krystine VanRossem (USA)
 Thomas Waltzek (USA)

Affiliated Members:

Akrivos Anagnostidis (Greece)
 Konstantina Andrikopoulou (Greece)
 Ioanna Basiouli (Greece)
 Sotirios Detsikas (Greece)
 Smaragda Douka (Greece)
 Dimitra Gelia (Greece)
 Maria Giagnisi (Greece)
 Eutychia Gouda (Greece)
 Ilias Kakaletis (Greece)
 Elli Kakava (Greece)
 Panagiotis Karagiannis (Greece)
 Nikolaos Loudaros (Greece)
 Eythymia Mitsi (Greece)
 Panagiotis Mouroutis (Greece)
 Ioannis Moutafis (Greece)
 Sofia Nikolopoulou (Greece)
 Irene Papavlasopoulou (Greece)
 Charilaos Petrou (Greece)
 Kalliroy Stamati (Greece)
 George Tosounis (Greece)
 Despoina Tsoutsouli (Greece)
 Chrysoula Vasileiadi (Greece)
 Marios Vavatsikos (Greece)
 Eustratios Xenos (Greece)



Secretary's Report

WAVMA's Influence and Veterinary Conferences

One question that I suspect is not infrequently asked of veterinarians is "What do veterinarians know about fish?" The usual answer will be "very little or nothing." I take great delight in informing them that even veterinarians who profess to know nothing actually know a great deal. I often use a comment given by the Dean of a UK veterinary school who, when I and others were lobbying for an aquatic module in the veterinary curriculum, responded by stating that all veterinarians will have started their study of the cardiovascular system on fish. He saw the comparative skills gained by veterinary undergraduates during their studies as providing a solid scaffold which could be built on once graduated, as occurs with many other animals.

Fair enough I thought, given the already crowded veterinary courses, but I often wonder whether the lack of an aquatics module in many veterinary schools perpetuates this misconception. Clearly something needs to be done to counteract this and surely nothing can be better than demonstrating the enthusiasm that veterinarians have for aquatic veterinary medicine and their depth of knowledge. This will be shown at this year's WAVMA Conference in Athens, where from correspondence already received (at the time of writing this) veterinarians from all over the world have expressed their intention to attend. If you have not already registered and booked your hotel room, then I would encourage you to do so quickly.

Since the formation of WAVMA in 2007, each year has seen the organisation of an annual conference improve and expand. The first in 2007, held at the end of the AVMA Convention, focused on the need for greater veterinary input into aquaculture and was attended by the Presidents of many international and national veterinary associations. Many issues were identified by the speakers and it was also clear that these issues were global, demonstrating the need for an association such as WAVMA.

In 2008, WAVMA was heavily involved in organising the aquatics strand of the World Veterinary Congress with several members being speakers. Without WAVMA it is likely that the WVC would not have had this aquatic veterinary strand and, of note to those of us who attended, at one point there were more attendees listening to the aquatics lectures than to any other production animals lectures.

In 2009, WAVMA's Annual General Meeting was in Seattle, Washington (USA) in conjunction with the AVMA Annual Convention. In addition WAVMA was one of the originators and co-organisers of the International Aquaculture Biosecurity Conference (IABC) in Norway (see www.IABCConference.org). The latter was an unquestioned

success and laid the foundation for standardized veterinary approaches for developing, implementing, auditing and certifying practical and useful biosecurity programs – from the national to on-farm levels. It built linkages and collaboration with several other organisations (many of which are or are shortly anticipated to be OIE Collaborating Centres) and generated several ongoing projects – including future publications and workshops. Indeed, the informal International Veterinary Aquaculture Biosecurity Consortium (IV-ABC) which evolved from this IABC meeting (of which WAVMA is an integral partner) is considering developing a "Practical Manual for the Implementation, Auditing and Certification of Aquaculture Biosecurity" that would be used in training Workshops for veterinarians, aquaculture producers and government officials in several parts of the world. Stay tuned for future information.

Thinking it was time to "test the water," 2010 is WAVMA's effort to organise a conference independent of other veterinary organisations – of all places, in historic Athens, Greece. Those of you who have organised international conferences will appreciate the time, commitment and effort required to ensure it is a success. Not only does it require hard work, but they are also expensive. However, thanks must go to those who have kindly agreed to sponsor the 2010 Aquatic Veterinary Conference including **Intervet/Schering-Plough, Pharmaq, Aqua Vet SA, University of Thessaly** and others. Importantly, some of the sponsorship funding has specifically been targeted at assist students attend the Conference; other sponsorship covers the cost of the conference meeting rooms, lunches, tea/coffee breaks and the banquet. Without this generosity it would be impossible to organise such an event. Not only that, we were able to negotiate discounted hotel rooms at the prestigious Divini Acropolis Hotel, tours for Conference attendees, family and friends, and a 4-day, 3-night cruise of the Greek Islands and Turkey.

But, as they say in commercial television advertisements "that's not all." On the cruise we'll have additional Continuing Education and Professional Development (CEPD) program that will provide additional CEPD credits towards veterinary licensing or registration to participants specifically to allow participants to offset many of the expenses as tax-deductable. All the ingredients are in place to ensure a wonderful educational, cultural and social event for those attending. If you've not already registered for the Conference and booked your hotel, tour and cruise options, all the information and forms are on the new "2010 WAVMA Conference" webpage at www.WAVMA.org.

CONTINUED ON NEXT PAGE

Secretary's Report—continued

For those of you unable to make it to Athens, you will miss an excellent conference but keep your diaries free for October 2011. Although currently tentative, we are working with the World Veterinary Association to organise the aquatic veterinary program as part of the 2011 World Veterinary Congress in Cape Town, South Africa. In addition, we are working to have an additional two day Biosecurity Training Workshop immediately following the WVC.

So members, be assured your Executive Board has been working hard to ensure membership has its privileges and that we fulfil one of the important parts

of the WAVMA mission: "To develop programs to optimally position, advance and support the discipline and practice of aquatic veterinary medicine, and advance and promote aquatic animal health and welfare, environmental and public health, and seafood safety."

Chris Walster BVMS MVPH MRCVS

WAVMA Secretary

chris.walster@onlinevets.co.uk

WAVMA Committee Reports

Meetings Committee

WAVMA at IAAAM Conference

Vancouver, BC, Canada

I am writing this with a slight case of jet-lag, back again in New York, after a week in Vancouver, BC, Canada. It was warm and sunny, not what anyone expected for this part of the world, but none the less greatly appreciated. Thanks to the efforts of IAAAM President and WAVMA member Dr. Judy St. Leger, Dr. Marty Haulena of the Vancouver Aquarium and his staff, Instructors Drs. Bill Van Bonn, Lance Adams, Steve Smith, Julie Cavin and Ilza Berzins and myself, we succeeded in running a terrific full day Fish Health Wet lab on Sat., May 8.

Using the aquarium hospital facility, we previewed the participants that they were being called upon by a hypothetical owner of a very valued and valuable specimen fish that was ADR ("ain't doin' right", U.S. veterinary shorthand for a patient sick without any specific symptoms) and challenged them to use all the non-lethal diagnostic tools available to them. And there were many.

Previewed by excellent PowerPoint presentations by our instructors, the participants sedated arctic char and salmon for physical exams, fin clips and skin scrapes, using anesthesia setups arranged by Greg Lewbart and Shane Christian from North Carolina State University veterinary school. They worked with ultrasound and x-ray equipment from the aquarium hospital and rigid endoscopes provided by the Storz Company.

During the afternoon, they were shown proper techniques for post-mortem exam and sampling for histopathology. Question and answer interaction throughout the day was immediate, with a participant-instructor ratio of less than 3:1 and the time passed very quickly and enjoyably. Much of the discussion was about differences between practice localities, with many interesting comments from both instructors and participants. And the participants, besides those from the U.S. and Canada, hailed from Germany, Italy, Brazil, China and Taiwan. The entire day was captured on videotape for future viewing by our members.

The next day, I moderated an afternoon roundtable discussion entitled "Opportunities and Challenges for Aquatic Veterinary Practitioners". This event, which WAVMA sponsored and catered, was well attended with participants enjoying good food and drink, thoughtful interactive discussion and great camaraderie. I had the opportunity to meet many new associates from around the world with similar interests to mine and hear opinions on varied topics. This event was also videotaped for future viewing.

Dr Julius Tepper

Meetings Committee Chair

cypcarpio@aol.com

Scholarship Committee Report

Selection of May 2010 John L. Pitts Aquatic Veterinary Student-Recent Graduate Scholarship Awards

Membership in WAVMA has its benefits! The WAVMA Scholarship Committee is pleased to announce the first round of John Pitts Scholarship Awards to the following WAVMA members:

- **Véronique LePage**, University of Guelph, Canada
- **Isil Aytemiz**, Istanbul University, Turkey
- **Barry Baker**, St. George's University, Virgin Islands
- **Erdem Danyer**, Istanbul University, Turkey
- **Tim Jones**, Cornell University, USA
- **Jonas Vaitkus**, VA-MD Regional College of Veterinary Medicine, USA
- **Thomas Waltzek**, University of California, USA

Projects proposed by applicants ranged from externships of short duration in academic and private practices where student members would be exposed to or participate in aquatic veterinary practice, to providing funds to be able to attend aquatic veterinary meetings such as the WAVMA 2010 Conference in Greece and the AQUAVET and MARVET programs in the USA. A few specifically focused on using scholarship funds to support aquatic veterinary research projects.

As a condition of the award all recipients agreed to provide a short article of their scholarship experience for publication in future WAVMA's Aquatic Vet News newsletters and will endeavor to give a presentation about this experience at some meeting in the future to alert others of the importance of WAVMA and the WAVMA scholarship opportunities.

Selection of these top candidates was not easy. The Committee reviewed 17 applications for many very worthwhile projects from our members around the world. We congratulate them all. However, with very deliberate consideration to ensure there were sufficient funds to guarantee another round of awards, the Committee carefully balanced the merits of each application against funds currently available. For this first round of WAVMA scholarships, we endeavored to ensure we funded as many as possible. We hope these awards will help these scholars to discover or expand their opportunities in the wonderful world of aquatic veterinary medicine.

The WAVMA Scholarship Programs

We anticipate the John Pitts Scholarships will be

one of several WAVMA Scholarship Programs established as one of many new membership services that are being developed. Early in 2010, as a first step the John Pitts Scholarships were established to honor and recognize the lifelong dedication of John Pitts towards promoting aquatic veterinary medicine and veterinary student involvement. A small, but dedicated group of WAVMA members including Chris Walster, Dušan Palić, Julius Tepper (all Board Members) and Kristin Kamps (a Student Member), and Madelyn Pitts who represents the Pitt's family, rapidly rallied to serve on what is now the WAVMA Scholarship Committee. The Committee established applicant criteria, put out the word, solicited donations to support the program, and make the first of what we hope are many awards.

Central to the John Pitts Scholarship Award Program is to assist WAVMA members who are veterinary students or newly graduated veterinarians defray expenses associated with participating in aquatic veterinary conferences/symposia, externships, internships, residencies and other continuing education and professional development (CEPD) opportunities, or with research projects. Of particular importance to the Scholarship Committee are those opportunities that offer exposure to clinical aquatic veterinary medicine and may encourage individuals to pursue a career in private practice, or significantly contribute to private practitioner services.

Next Steps for WAVMA Scholarships – Future Scholarships & Tax-Deductible Contributions

In setting up the WAVMA Scholarship Programs the Committee recognized the opportunity to expand these membership services into other areas and sought to ensure: 1) all contributions made to the WAVMA Scholarship Programs were *bona fide* tax-deductible charitable donations; 2) that the John Pitts Scholarships will continue for a long time; and, 3) to expand scholarship opportunities into other WAVMA-related activities.

A major step forward in ensuring that the WAVMA Scholarship Programs will be long-lived was to ensure that all contributions can be considered as tax-exempt charitable donations. After checking the legal and accounting requirements, the Committee approached the American Veterinary Medical Foundation (contributions to Foundations clearly meet this requirement). The AVMF warmly embraced the opportunity and offered to manage all donations and distribution of funds. In addition, this WAVMA/AVMF partnership opens a large number of opportunities – from wide promotion of the scholarship program through press releases and other

Scholarship Committee Report-continued

media, to actively soliciting donations from the public, other veterinarians, and even commercial companies. In addition the AVMF set up online opportunities for donors to contribute using a credit card.

In addition to the John Pitts Scholarships, the WAVMA Board and the Scholarship Committee took the bold step to also create additional student travel-support scholarships to the 2010 WAVMA Conference in Greece to sponsorship for the Conference. Two Conference sponsors – Intervet/Schering-Plough Animal Health and PHARMAQ – each contributed \$200 to assist two student members from Turkey (Isil Aytemiz and Erdem Danyer) with travel expenses. We are very grateful for the support from these companies who obviously are very strong supporters of WAVMA and our members.

While the Scholarship Committee and the AVMF have not yet started to actively solicit donations, to date donations have totaled \$8,400. Interestingly, the word has got out about our Scholarship Program and even students have contributed. We encourage all WAVMA members to consider donating. It's secure and takes but a few minutes – simply go to www.AVMF.org and click on the “Donate Online” button. If you know of an individual, company or group that might consider donating to this worthy cause, and

that a letter of invitation might encourage them to do so, feel free to provide Dr. David Scarfe (dscarfe@ameritech.net) the full contact information. Remember—the more we raise, the more support we can provide.

David Scarfe, PhD, DVM, MRSSAf
WAVMA Scholarship Committee Chair
dscarfe@ameritech.net

WAVMA Scholarship Program 2010 Donors

\$2,000 and above

Pitts Family

\$1,000-\$1,999

Anonymous

Dr. Chris Walster

Student American Veterinary Medical Association (SAVMA)

\$500 - \$999

Up to \$500

WAVMA Executive Board

Help give veterinary students and newly graduated veterinarians the opportunity to experience the thrill of Aquatic Veterinary Medicine

Join WAVMA and the AVMF in Supporting Aquatic Veterinary Scholarships

Make a charitable, tax-deductable donation – Today!

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Literature Review

Finfish Aquaculture Diversification

Edited by N Le François, M Jobling, C Carter & P Blier

CABI Publishing. ISBN 9781845934941

Published April 2010. Hardback 688 Pages.

Cost £135.00 \$255.00 €190.00

Link to website page:

<http://bookshop.cabi.org/?page=2633&pid=2139&site=191>

The book is divided into five sections with the first section discussing "Aquaculture Diversification: an Introduction" consisting of seven chapters which discuss the characteristics required in a finfish species suitable for aquaculture and models which the authors have used in assessing species suitability. The full section runs to around 150 pages and is a "textbook" in itself.

The second section "Finfish Species Description and Biotechnical Analysis" starts with an introduction to identifying suitable species and then has thirteen chapters describing potential and current species used in aquaculture grouped by Family. Each chapter provides an introduction to the Family followed by individual species information such as their biology, culture methods, broodstock management, nutritional requirements and future potential. The amount and quality of the information varies between chapters but the variation seems to be mainly due to how well known the species is and the authors' own personal interests. Reading the book gives the impression that the chapters were intended to be standardised but this has not been fully achieved. This is not detrimental to the overall content of the book and actually may be considered beneficial as it increases the scope, content and interest whilst reading.

The third section contains two concise chapters on "Market and Economic Analysis" which despite their limited pages provide a thorough introduction to basic marketing concepts and economic reasons for diversification.

Section four entitled "Future Perspectives" consists of four chapters around ten pages long covering topics from recirculation technologies to the marketing of aquaculture by-products, organic and ecolabelling and finishing with a discussion of the future of aquaculture based on economic theory. Once again each chapter is very informative.

Section five consists of 24 species fact sheets, each of which provides clear information on biological characteristics such as water temperature for optimal

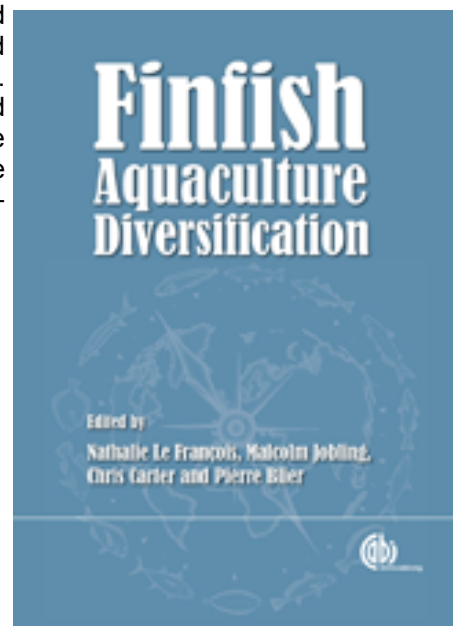
growth, time to first feed, basic production methods and commercial characteristics.

Overall the book is extremely readable and can be read for hours at a time, something which is rare in a text book. On every page there seemed to be a real nugget of information or a concept which required thinking about. Undoubtedly if the chapter is on a species you are familiar with then it is likely that you might find the information somewhat basic but each chapter has a comprehensive list of references at the end which allows you to delve much deeper. Alternatively if you know nothing about a species, then having read the relevant chapter, it would probably take an expert a couple of days to realise your knowledge was not as deep as they first thought.

On the plus side, there is a lot of information provided on species and various concepts which is very clearly set out and available with the information being up to date. On the negative side there is one minor complaint that, very occasionally, whoever did the proof reading needed glasses.

Despite the enthusiasm with which the book was read, its undoubted merits, wealth of information and scope, there is still a question as to who should purchase it? It is an excellent text but at £135/\$255 it is not cheap and / or targeted at a specialist niche market. There are other texts which contain much of the information, although you might need to buy several to equal the coverage in this volume. If you have the money and even a vague interest in the contents then buy a copy. It can be thoroughly recommended as a text for veterinary students, both under and postgraduate, to read and should be placed on reading lists. Librarians should ensure they have at least a couple of copies available.

Reviewed by
Chris Walster



Colleague's Connection

International Collaboration In Japan

Hokkaido University emerged from the Sapporo Agricultural School, which was founded in 1876 as the first higher educational institution for agricultural studies in Japan. At the time of its establishment, the Sapporo Agricultural School invited Dr. William S. Clark to visit, who was the president of the Massachusetts Agricultural College in the United States. Upon his departure, Dr. Clark's farewell remarks were "Boys, be ambitious", which has been inherited as the spirit of the foundation of the institution for its over 130 years of existence.

The Faculty of Fisheries Sciences and the Faculty of Veterinary Sciences are not just separate entities but are located on individual sites, thus relationships between the two merely occur at the level of senior management. As a result, the concept of an Aquatic Veterinarian is farfetched from the minds of the average student. A student that pursues a Masters or PhD in Fisheries Sciences would have done a BSc in Fisheries as well and the same goes for the Veterinary students. I happen to be the only Veterinarian currently enrolled with the Faculty of Fisheries Sciences, and the average student is amazed when they discover that about me.

The faculty is separated in two ramifications, namely Marine Resource Sciences and Marine Life Sciences, the latter of which deals with issues of direct concern to Veterinary Medicine. Marine Life Sciences is divided into 6 departments, each having their own laboratories and investigative focus. These are: Biology, Genetics/Genomics, Microbiology/Biotechnology, Chemistry, Products/Food and Bio safety.

Without a doubt, I am in the department of Marine Microbiology and Biotechnology, the closest one gets to the field of veterinary medicine. This department has three components, Microbiology, Molecular Biology and Epizootiology. The field of Molecular Biology is not exactly disease related since it looks at the genetic engineering of various functional proteins and enzymes from marine animals and their applications to industrial uses. However, in the field of Microbiology, our studies are geared towards the identification and classification of microbes associated with diseases of marine animals, their molecular ecology and an ongoing search for symbiotic marine bacteria associated with marine animals. While in the field of Epizootiology, we focus on the infectious diseases of fish and shellfish, especially diagnosis, treatment and prevention.

Having outlined the reality of our faculty, it is now time to indicate a new development that actually allows positive and meaningful interactions between the two

faculties that are fisheries and veterinary sciences at the grass roots level among students. It comes in the wake of the current dilemma and issues facing humanity, such as global warming, decreased biodiversity, food shortages, water crises, health and hygiene issues and resource depletion. These issues are complex and intertwined, such that despite their best efforts, it is most unlikely that any particular expert or specialist can solve them on their own. Experts are assembled, regardless of their disciplines, teams are formed, and each team is required to make the best use of the expertise contained within the team. Therefore, the education programs offered by the individual faculties cannot meet the broad knowledge and practical education requirements necessary for sustainability on their own. As a result, Hokkaido University, in cooperation with Japan International Cooperation Agency (JICA), is promoting the education of internationally renowned experts.

In this programme, students from the various faculties with their specific training, investigations and interest come together regularly to debate, study and offer solutions to these aforementioned issues using video-conferencing, seminars, workshops and field visits. Although in its early stages, the effects are already being felt among the students and there is mutual respect for the contribution that everyone makes in their own science fields. There are already practical cases where students from different faculties work on a similar investigation offering multidimensional interpretations of the data obtained. I believe that this endeavour is indeed one that can serve as a good example not just to other schools but world experts as a whole who usually bask in their individualistic glories. It is indeed a testimony of that age old motto "Boys, be ambitious."

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Clinical Reports

Effects of anesthesia and surgery on serial blood gas values and lactate concentrations in yellow perch (*Perca flavescens*), walleye pike (*Sander vitreus*), and koi (*Cyprinus carpio*)

Hanley CS, Clyde VL, Wallace RS, Paul-Murphy J, Paterson TA, Keuler NS & Sladky KK (2010).

JAVMA, 236(10): 1104-1108.

Abstract

Objective—To evaluate serial blood gas values and lactate concentrations in 3 fish species undergoing surgery and to compare blood lactate concentrations between fish that survived and those that died during the short-term postoperative period.

Design—Prospective cohort study.

Animals—10 yellow perch, 5 walleye pike, and 8 koi.

Procedures—Blood samples were collected from each fish at 3 time points: before anesthesia, during anesthesia, and immediately after surgery. Blood gas values and blood lactate concentrations were measured. Fish were monitored for 2 weeks postoperatively.

Results—All walleye and koi survived, but 2 perch died. Blood pH significantly decreased in perch from before to during anesthesia, but increased back to pre-anesthesia baseline values after surgery. Blood PCO₂ decreased significantly in perch from before anesthesia to immediately after surgery, and also from during anesthesia to immediately after surgery, whereas blood PCO₂ decreased significantly in koi from before to during anesthesia. Blood PO₂ increased significantly in both perch and koi from before to during anesthesia, and also in koi from before anesthesia to immediately after surgery. For all 3 species, blood lactate concentrations increased significantly from before anesthesia to immediately after surgery. Blood lactate concentration (mean ± SD) immediately after surgery for the 8 surviving perch was 6.06 ± 1.47 mmol/L, which was significantly lower than blood lactate concentrations in the 2 nonsurviving perch (10.58 and 10.72 mmol/L).

Conclusions and Clinical Relevance—High blood lactate concentrations following surgery in fish may be predictive of a poor short-term postoperative survival rate.

Effects of the Veterinary Pharmaceutical Ivermectin in Indoor Aquatic Microcosms

Boonstra H, EP Reichman & PJ van den Brink (2010). [Arch. Environ. Contamin. Toxicol.](#), 4 (June 2010)

Abstract

The effects of the parasiticide ivermectin were assessed in plankton-dominated indoor microcosms. Ivermectin was applied once at concentrations of 30, 100, 300, 1000, 3000, and 10,000 ng/l. The half-life (dissipation time 50%; DT50) of ivermectin in the water phase ranged from 1.1 to 8.3 days.

The lowest NOEC (community) that could be derived on an isolated sampling from the microcosm study by means of multivariate techniques was 100 ng/l. The most sensitive species in the microcosm study were the cladocerans *Ceriodaphnia* sp. (no observed effect concentration, NOEC = 30 ng/l) and *Chydorus sphaericus* (NOEC = 100 ng/l). The amphipod *Gammarus pulex* was less sensitive to ivermectin, showing consistent statistically significant reductions at the 1000-ng/l treatment level.

Copepoda taxa decreased directly after application of ivermectin in the highest treatment but had already recovered at day 20 post-treatment. Indirect effects (e.g., increase of rotifers, increased primary production) were observed at the highest treatment level starting only on day 13 of the exposure phase.

Cladocera showed the highest sensitivity to ivermectin in both standard laboratory toxicity tests as well as in the microcosm study. This study demonstrates that simple plankton-dominated test systems for assessing the effects of ivermectin can produce results similar to those obtained with large complex outdoor systems.

[The Online First full paper is downloadable from

<http://www.springerlink.com/content/c0382647472473kx/>]

Clinical Reports

Treatment development for systemic *Tetrahymena* sp. infection in guppies, *Poecilia reticulata* Peters

M Pimenta Leibowitz, J Kumar Chettri, R Ofir and D Zilberg

[J of Fish Dis Vol 33 Iss 6](#), Pages 473 - 480

Published Online: 8 Mar 2010

Correspondence to Dr M Pimenta Leibowitz, Ben-Gurion University – Dryland Biotechnologies givim 11/2 Sapir D.N. Arava Midreshet, Ben Gurion 86825, Israel (e-mail: marcial@bgu.ac.il)

Abstract

Antibacterial and antiparasitic agents and a cysteine protease inhibitor (E-64) were tested against *Tetrahymena* infection, a serious problem in guppy production worldwide. Chemicals were tested in vitro by a colorimetric assay for *Tetrahymena* survival.

The most effective were niclosamide, albendazole and chloroquine, with 23%, 35% and 60% survival, respectively, following 2-h exposure to 100 ppm. Longer incubation periods resulted in greater reductions in survival. Niclosamide was further studied in vivo at different dosages, administered orally to *Tetrahymena*-infected guppies.

Mortality rates were significantly lower in all treatment groups; in trial I, 30% and 33% mortality in 5 and 40 mg kg⁻¹ niclosamide-fed fish vs. 59% mortality in controls; in trial II, 35%, 13% and 10% in 50, 100 and 200 mg kg⁻¹ niclosamide-fed fish vs. 64% in controls.

The effect of the cysteine protease inhibitor E64 was tested in tissue culture, by measuring histolytic activity of the parasite (Tet-NI) on a guppy-fin cell line, based on cell depletion. Tet-NI feeding activity was significantly reduced following pretreatment with E-64 relative to non-treated Tet-NI. E-64-pretreated Tet-NI was injected i.p. into guppies: recorded mortality rates were significantly lower (35%) than that in non-treated Tet-NI (60%), suggesting inhibition of the parasite's cysteine protease as a possible therapeutic approach.

Received: 22 May 2009.

Revision received: 26 December 2009.

Accepted: 7 January 2010

Salmon Poisoning Disease in Dogs: 29 Cases

J.E. Sykes, S.L. Marks, S. Mapes, *et al.*
[Journal of Veterinary Internal Medicine](#)
[Volume 24 Issue 3](#), Pages 504 - 513

Published Online: 22 Mar 2010

Corresponding author: Jane E. Sykes, BVSc(Hons) PhD DACVIM, Department of Medicine and Epidemiology, 2108 Tupper Hall, School of Veterinary Medicine, University of California, Davis, Davis, CA 95616;

e-mail: jesykes@ucdavis.edu.

Abstract

Background: Salmon poisoning disease (SPD) is a trematode-borne disease of dogs caused by *Neorickettsia helminthoeca*.

Objectives: To determine risk factors and spatial epidemiology of SPD in dogs from northern California; to describe the clinicopathologic, microbiologic, and imaging findings of SPD in these dogs; and to evaluate treatments and outcomes for SPD.

Animals: Twenty-nine dogs with SPD based on the finding of trematode ova in the feces, or organisms consistent with *N. helminthoeca* in specimens submitted for microscopic examination.

Methods: Information regarding signalment, fish exposure, clinical signs, diagnostic evaluation, treatments, and outcomes was obtained for each dog. Archived lymph node aspirates and histopathology specimens were subjected to polymerase chain reaction (PCR) testing for *Neorickettsia* spp.

Results: Labrador Retrievers and intact male dogs were overrepresented. Exposure locations were often distant from the dogs' residence. Some dogs had neurologic signs, including twitching and seizures. Dogs lacking peripheral lymphadenomegaly had abdominal lymphadenomegaly on ultrasound examination. A combination of centrifugation fecal flotation and sedimentation had greatest sensitivity for finding fluke ova. *N. helminthoeca* DNA was amplified by PCR from 4/10 dogs. Penicillins, cephalosporins, and chloramphenicol did not appear to be effective treatments. Mortality rate was 4/29 (14%).

Conclusions and Clinical Importance: SPD should be suspected in dogs with inappetence, gastrointestinal, or neurologic signs, with or without fever or peripheral lymphadenomegaly in the appropriate geographical setting. Diagnosis is facilitated by a combination of fecal sedimentation and centrifugal flotation, abdominal ultrasonography, and PCR-based assays on lymphoid tissue. The treatment of choice is tetracycline antimicrobials.

Aquatic Vet News

Quarterly Newsletter

Instructions for Authors and Contributors

Do you want to make an impact and a contribution to aquatic veterinary medicine? If so, consider becoming a regular or periodic contributor to the quarterly *Aquatic Vet News*.

Really excel by volunteering to be an Associate Editor to collate information and edit select *Aquatic Vet News* columns.

Help make the *Aquatic Vet News* the source for pertinent and important news. If you would like to be an Associate Editor or have material published in AVN, contact or submit it today to Nick Saint-Erne (nsaint-erne@ssg.petsmart.com, or Saint-Erne@Q.com).

Submission Deadlines:

Issue 1 – February 15 (published early March)

Issue 2 – May 15 (published early June)

Issue 3 – August 15 (published early September)

Issue 4 – November 15 (published early December)

While any information directly relevant to aquatic veterinary medicine might be published, we particularly invite contributions for (and Associate Editors to assist with) the following regular columns:

(Submissions may be edited to fit the space available. One page is ~1,000 words).

Aquatic Vet Q&A

Short description of a problem and solution to an issue – if you don't have the solution, ask the questions and let readers submit solutions for the next issue (½ to 1 page).

Clinical Cases

Clear description of a distinct clinical case or situation and how those were resolved (1-3 pages)

Book Reviews

Brief review of a published book, including an overview and critique of the contents and where to obtain the book (½ to 1 page).

News & Views

Brief synopsis or information about news published elsewhere (½ to 1 page).

Publication Abstracts

Abstracts of published veterinary and scientific journals with full citation/reference (authors, date, title, and journal volume and page numbers – ½-1 page).

Legislative & Regulatory Issues

Synopsis or description of emerging legislation or regulations with information on how to access further detailed information (½ to 1 page).

Externships, Internships & Residencies

Description with specific contact information for veterinary student externships and post-graduate internships or residencies at private practices, institutions, universities or organizations (½ to 1 page).

Meetings & CEPD Opportunities

Description or synopsis of upcoming aquatic veterinary or (veterinarian-relevant) non-veterinary in-person or on-line educational meetings noting the meeting title, dates, location, and contact person or website (½ to 1 page).

Jobs Available

Description of available full or part-time employment for aquatic veterinarians (½ to 1 page).

Pictures

Pictures & Photographs

Contributors of original photographs illustrating aquatic veterinary practices or procedures will be credited.

Emerging Issues

News from Oceania – June 2010

One of our fellow fish vets (from Future Fisheries Veterinary Service, NSW, Australia) is battling for accountability and more responsible regulation and use of agrichemicals since finding substantive evidence of harm on a native fish hatchery. The fish hatchery is bordered on 3 sides by a Macadamia plantation. Concurrent with management changes to plantation spraying for pests and fungal diseases, detrimental effects have been observed and investigated on the neighbouring farmed fishes (golden perch, silver perch, mullet, bass and saratoga).

The aforementioned fish farm had been in productive operation for 20 years, selling thousands of fingerlings for restocking programs prior to the problems emerging over the past 5 years. The evidence suggests that elevated mortality rates (up to 100%) and increased incidence of deformities (with up to 90% of individuals in a spawning run affected) are likely a consequence of agrichemical exposure. Off site movement via spray drift, dust, volatisation and run-off with rainfall are the mechanisms implicated by which broodfish, or eggs and larvae have become exposed.

Positive residue tests indicate off-site movement of pesticides onto the fish hatchery property, and into its ponds and tanks and throughout the local river system (Noosa River). This included detections of carben-dazim, trichlorfon, nonylphenol, octylphenol, bisphenol A, methoxyfenozide and urea at the hatchery. In the Noosa River carben-dazim, endosulfan sulphate, atrazine, metalochlor, galaxolide and TCPP were detected in passive samplers.

Temporal epidemiological associations between many acute mortality events and reported spraying activity show tight correlations. Meteorological data corresponding to the times of chemical application on the plantation favoured spray drift (low humidity and high temperatures).

The syndromes recorded include mortality of adult fish in ponds; mortality of larvae in ponds; mortality of larvae and fingerlings in tanks; malformation of embryos and larvae in tanks (including absence of eyes, body length shortening, axial duplication (two heads) and triplication (three tails); growth impediments in fingerlings; and neurological dysfunction in larvae.

Dr Landos, from Future Fisheries Veterinary Service, remains very concerned that the observed embryonic and larval mortality and malformation syndromes at the fish hatchery may be occurring in wild fish within the Noosa River and more widely in agricultural catchments of Australia. Given some of the broodfish that gave rise to deformed embryos were sourced from the wild, the epidemiology points to a wider problem. Urgent regulatory precautionary action and research attention to this matter should be a priority.

A Government taskforce has been investigating the incidents for the past 16 months. Dr Landos is a member of the taskforce. The taskforce's final report is due to be released in June 2010.

Dr. Richmond Loh

thefishvet@gmail.com

Gulf of Mexico Oil Spill: Cleaning Wetlands May Be Impossible, Scientists Say

Matthew Brown | 05/22/10 08:28 PM | AP

For full article, go to: http://www.huffingtonpost.com/2010/05/23/gulf-oil-spill-cleaning-w_n_586240.html

NEW ORLEANS — The gooey oil washing into the maze of marshes along the Gulf Coast could prove impossible to remove, leaving a toxic stew lethal to fish and wildlife, government officials and independent scientists said. Officials are considering some drastic and risky solutions: They could set the wetlands on fire or flood areas in hopes of floating out the oil. They warn an aggressive cleanup could ruin the marshes and do more harm than good. The only viable option for many impacted areas is to do nothing and let nature break down the spill.

More than 50 miles of Louisiana's delicate shoreline already have been soiled by the massive slick unleashed after the Deepwater Horizon rig burned and sank last month. Officials fear oil eventually could invade wetlands and beaches from Texas to Florida. On Saturday, a major pelican rookery was awash in oil off Louisiana's coast. Hundreds of birds nest on the island, and an Associated Press photographer saw some birds and their eggs stained with the ooze. Nests were perched in mangroves directly above patches of crude. Plaquemines Parish workers put booms around the island, but puddles of oil were inside the barrier.

Over time, experts say weather and natural microbes will break down most of the oil. However, the crude will surely poison plants and wildlife in the months – even years – it will take for the syrupy muck to dissipate.

Legislative & Regulatory Issues

United States Department of Agriculture

Aquaculture National Program

Agricultural Research Service

The **USDA Aquaculture National Program** has conducted scientific research conducted in the areas of genetics, animal performance, nutrient requirements, improving health, and production systems and products.

The USDA ANP Agricultural Research Service helps to develop and ensure an abundant, safe, and affordable supply of seafood products within a healthy, competitive, and sustainable aquaculture sector.

Here are some of their accomplishments in improving fish health over the last fiscal year:

Vaccine developed for motile *Aeromonas septiemia* disease of catfish and tilapia. No vaccine is currently available for the bacterial pathogen *Aeromonas hydrophila*, which causes motile *Aeromonas* septiemia disease in many species of cultured fish, including catfish. In a cooperative agreement with a U.S. biologics manufacturer, ARS scientists developed a modified live *A. hydrophila* vaccine and demonstrated its effectiveness in preventing motile *Aeromonas* septiemia disease in channel catfish and tilapia. The studies also demonstrated the efficacy of bath immersion immunization for both juvenile channel catfish and Nile tilapia, which is an attractive option for use in aquaculture. A U.S. patent application was filed for this vaccine.

Improved methods developed for the genetic manipulation and analysis of *Edwardsiella ictaluri*. *Edwardsiella ictaluri*, the cause of enteric septiemia in channel catfish (*Ictalurus punctatus*), has considerable economic impact on the cultured catfish industry. Molecular genetic manipulation of this bacterium can be used to determine virulence factors, invasive pathways, and mechanisms of host-pathogen interactions. ARS scientists completed the first successful genetic manipulation of this bacterium, using chemical and electric current to transform seven strains. This improved technique will aid in determining virulence traits and other host-pathogen interactions that may lead to new vaccine strategies to protect farm raised catfish from *E. ictaluri*.

Therapeutic benefits of *E. ictaluri* vaccine demonstrated. In general, animals are vaccinated far in advance of exposure to a disease so that the immune

system can prepare itself for exposure to the disease at a future time. Through a series of experiments, ARS scientists found that catfish injected with the modified live *E. ictaluri* vaccine just one day prior to virulent challenge were protected, and that an important immune gene (toll like receptor 5) was up-regulated within hours after exposure to the vaccine strain. Consequently, research shows that this vaccine confers adequate protection for therapeutic use in treating exposed fish during a disease outbreak, illustrating its utility beyond advanced prevention.

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Public health implications of *Streptococcus agalactiae* infection identified. *Streptococcus agalactiae* is a cause of infectious disease in numerous animal species, having become recognized as an emerging pathogen of wild and cultured fish and bottlenose dolphins. ARS scientists examined the genetic relatedness of fish, dolphin, cattle, and human *S. agalactiae* isolates from different geographical regions, finding that the dolphin and fish lineage was also found in human infections in Japan. These findings suggest that *S. agalactiae* derived from different animal species may have the potential to cause disease in humans, which has important public health implications.

Pathogenesis of new enteric redmouth biotype revealed. Enteric redmouth has long been controlled in fish culture by using an effective vaccine against *Yersinia ruckeri*. Recently, a new "biotype II" of the disease has emerged, causing disease outbreaks of enteric redmouth disease on farms using the traditional vaccine. ARS scientists have revealed a potential molecular basis for the emergence of this new biotype,

Legislative & Regulatory Issues

finding that a simple change to the DNA prompts the switch from biotype I to II. The bacterial strains developed in this study will be useful for developing a vaccine that is effective against both biotype strains and for understanding and predicting vaccine failure.

Disease spreading capacity of fish-eating birds shown to be doubtful. There has been concern that fish-eating birds could spread disease organisms by eating sick fish and then passing viable disease organisms through their feces. Using a recognized *in vitro* model that replicates the gastric and intestinal systems of birds, reptiles, and crawfish, scientist at the University of Arkansas at Pine Bluff working with ARS scientists showed that microbial pathogens, especially viruses, are extremely sensitive to digestive tract fluids, particularly at warm temperatures. This shows that birds are unlikely to serve as significant vectors of these fish pathogens.

<http://www.usda.gov/wps/portal/usda/usdahome?navid=AQUACULTURE&parentnav=AGRICULTURE&avtype=RT>



United States Department of Agriculture
Research, Education, and Economics
Agricultural Research Service

Viral hemorrhagic septicemia virus could be in a lake without killing fish, according to a new study on the deadly virus that threatens New York's billion dollar sport-fishing industry.

Ships may not have recently introduced a deadly virus that has killed large numbers of fish in several Great Lakes since 2005 as previously thought, reports a new Cornell study, but the virus may have been present for decades. Its new finding is that "viral hemorrhagic septicemia virus (VHSV) could be in a lake without killing fish," said Mark Bain, associate professor of natural resources and lead author of a paper published online in the journal *Public Library of Science One* (Vol.5,#4). "Healthy fish can carry this disease at low levels," said Bain. "That means the eruption of fish kills from VHSV does not signal its arrival."

After large numbers of fish inexplicably died in Lake Ontario in 2005, researchers at Cornell's College of Veterinary Medicine identified the culprit as VHSV, which causes anemia and hemorrhaging in fish but is harmless to humans. It was the first time the virus had been documented in a Great Lake. The researchers had assumed that ships had recently introduced the virus.

The new study, however, reports that VHSV is prevalent in the waters and fish everywhere they tested in Lakes Huron, Erie and Ontario, leading them to think the virus may have been living in fish undetected in the lakes for decades, casting doubt on the theory that ships introduced the virus. Until now, researchers had only tested samples from dead fish. The new study involved analyzing samples, for the first time, from live fish and water from 30 locations across the three Great Lakes, including 10 harbors, 10 boating centers and 10 wild shorelines.

"We found it everywhere, not just around fishing harbors and boating centers," said Bain. "We have no evidence that this pathogen is concentrated around shipping." The researchers do not know how the virus initially entered the Great Lakes, but VHSV has existed historically in the North Atlantic and in Europe.

One theory why VHSV started killing fish in large numbers in 2005 is that warmer springs led to rapid rises in water temperatures, which stresses fish during spawning periods and makes them more susceptible to the virus. Another theory: that over the last 10 years, the round goby -- known carrier of the virus -- has been spreading in the Great Lakes and may be shedding VHSV in the water.

Co-authors Geoffrey Grocock, Paul Bowser, and James Casey analyzed the samples using a rapid genetic technique they developed to detect the virus.

The full PLoS One article at <http://tinyurl.com/2eooyb4>.

*2010 International Aquatic Veterinary Conference, Annual General Meeting,
& CEPD/Family Cruise of the Greek Islands & Turkey*

Athens, Greece – July 12-19, 2010

*Conference Theme: "Integrated Disease Diagnosis, Control and Treatment in Aquatic Veterinary Medicine -
from koi, to cod, to sushi"*

3-5 Days of Veterinary Continuing Education & Professional Development (CEPD)

SEE THE WAVMA 2010 CONFERENCE WEBPAGE at www.WAVMA.org FOR FULL INFORMATION

CONFERENCE ACTIVITIES

- Monday, July 12 - Athens Conference Aquatic Veterinary Presentations
- Tuesday, July 13 - Athens Conference Aquatic Veterinary Presentations
- Wednesday, July 14 - Athens Conference Aquatic Veterinary Presentations / WAVMA AGM / Banquet
- Thursday, July 15 - Optional Family tours of historic Athens
- Friday-Monday, July 16-19 - Optional CEPD/Family Cruise

Speakers/Posters

See the Conference webpage to download Speaker/Poster Abstract Forms

NOTE: late abstracts submitted by June 25 may be accepted provided slots are available in the program

Conference & CEPD Program Registration

See the Conference webpage for on-line registration and secure credit card payment or to download Forms to mail/fax

NOTE: Pre-Conference registration closes July 1; late registration (at an increased cost) will be available on-site

Divani Palace Acropolis Hotel / Prearranged Airport Transportation

See the Conference webpage for full description, and to download Forms to mail/fax to EUROSTAR/Travel Plan

NOTE: On receipt of a reservation form, EUROSTAR/Travel Plan will confirm availability of rooms in the Divani Palace Acropolis Hotel, or will provide alternative options

Historic Athens Family Tours & 4-Day/3-Night Cruise

See the Conference webpage for full description and options, and to download Forms

NOTE: On receipt of a reservation form EUROSTAR/Travel Plan will confirm availability on tours and cabins,

CONFERENCE SPONSORSHIP

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Aquatic Education

Health & Colony Management of Laboratory Fish

August 16-20, 2010

Mount Desert Island Biological Laboratory
Salisbury Cove, Maine

Overview:

A short course for principal investigators, technicians, trainees, or core managers who utilize or plan to utilize fish models in laboratory research.

Topics covered include:

Fish Disease identification, treatment & management
General training: anatomy, histology and necropsy techniques
Core management: water quality, facility considerations
Species covered: Zebrafish, Fundulus, Medaka, Elasmobranchs.

Health and Colony Management of Laboratory Fish is a novel short course to help technical staff, graduate students, postdoctoral fellows, junior faculty and investigators monitor the health of a colony of aquatic organisms.

This course is a 1-week educational opportunity for individuals with maintenance, management or research responsibilities in which fish are used as laboratory animals. The course is offered at the Mount Desert Island Biological Laboratory, Salisbury Cove, Maine during the period of 16 - 20 August 2010. Topics to be discussed will include general system design and water quality management, anatomy and histology of fish, general fish diseases and disease management strategies. Infectious and non-infectious diseases common to all fish as well as specific diseases of importance to laboratory-maintained zebrafish will be discussed.

The course will consist of lecture, laboratory exercises and discussions. During the course there will be an opportunity for students to discuss unusual and/or unsolved diagnostic case experiences from their home laboratories as problem-solving exercises.

Tuition: \$2,100 (room and board included)

Registration Deadline: July 15, 2010

Contact:

Paul Bowser, Ph.D., Course Director
Professor of Aquatic Animal Medicine
College of Veterinary Medicine
Cornell University
prb4@cornell.edu

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.

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. spoynton@jhmi.edu

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

Aquatic Education

Invertebrate Medicine 2010

August 28, 2010 (7:30 am – 5:00 pm)

NC State University, College of Veterinary Medicine – Raleigh, NC.

Program Overview

This course will introduce the veterinarian, veterinary student, professional aquarist/curator, or serious hobbyist to the anatomy, physiology, natural history, and disease problems of the more important invertebrate groups: sponges, corals, mollusks, annelids, crustaceans, echinoderms, and arachnids.

Upon completion of this program participants should be able to:

1. Obtain a useful history and plan examination procedures in a variety of invertebrate species.
2. Perform gross necropsy examination of invertebrates and be able to identify major anatomical features and organ systems.
3. Anesthetize and recover invertebrate patients using water-soluble and gas anesthetic agents.
4. Calculate, compound and deliver medication for some invertebrates.
5. Identify probable causes of environmentally related problems in aquatic and terrestrial systems and recommend mitigation.
6. Be familiar with and able to use the common reference sources in invertebrate medicine.

Registration Fees--Registration for this course is \$125. The fee includes lunch (FULL COURSE REGISTRATION ONLY) and proceedings on CD-ROM. There is an option of doing either morning or afternoon for \$75. These half-day registrations do not include lunch.

Cancellation Policy: Full refunds will be granted for notices received in writing, either by mail, fax, or e-mail, by the end of early registration. A refund less a 25% administrative fee will be granted for requests received during late registration. No refunds will be granted after the course has begun.

Continuing Education Credit: This course offers eight (8) hours of continuing veterinary medical education for veterinarians and veterinary technicians. Morning and afternoon sessions are four (4) hours each. Full attendance is required to receive total CVME credit.

Preliminary Schedule: 7:30 - 8:00am – Registration; 8:00 - 8:15am - Introductions, Course Overview (Dr. Greg Lewbart); 8:15 - 11:00am -Aquatic Invertebrate Medicine, to include sponges, coelenterates, flatworms, mollusks, horseshoe crabs, crustaceans, and echinoderms (Dr. Greg Lewbart); 11:00am - 12:15pm - Aquatic Invertebrate Wet Lab (Shane Christian and Faculty); 12:15 - 1:00pm - Lunch (provided); 1:00 - 4:00pm - Terrestrial Invertebrate Medicine, to include spiders, scorpions, centipedes, millipedes, and insects (Drs. Ryan De Voe and Dan Dombrowski); 4:00 - 5:00pm - Terrestrial Invertebrate Wet Lab (Shane Christian and Faculty).

Full Details, Registration and Accommodation: go to <http://www.cvm.ncsu.edu/conted/invert.html>

Aquatic Education

2nd International Congress & Exhibition on Aquatic Animal Health Management and Diseases

October 26-27, 2010

Tehran, Iran

The 2nd International Congress & Exhibition on Aquatic Animal Health Management and Diseases" will be held by Veterinary Council, I.R. Iran, as Organizer, with collaboration of Contemporary Conference Organizers as co-organizer and with support of Iran Veterinary Organization, Faculty of Veterinary Medicine of University of Tehran, Iranian Fisheries Research Organization and Iran Fisheries Organization.

The Topics of congress include:

- * Diseases, Prevention and Treatment
- * Nutritional Health Management
- * Water Quality Management
- * Health Management in Farms

In the first Congress, held on January 27-29, 2009, more than 600 papers from Belgium, France, India, UK, Germany, Malaysia, Philippines, Greece, Poland and Iran were submitted. Also 32 Iranian and foreign companies participated in the specialized Exhibition, held besides this Congress.

You are kindly invited to submit the abstracts and we highly appreciate if you could kindly forward this announcement to other colleagues who may be interested in submitting an abstract.

- * Deadline for abstract submission is June 20, 2010.

Congress Participation fee will be 150€/each person.

The fee includes:

- Congress publications and CDs
- Lunch and refreshment (Two days)
- Certificate of Attendance
- Airport pick up and Transfer (Transfer from Airport to Hotel and vice versa)
- Tehran Sightseeing

To receive more detailed information, please visit our website or contact the secretariat:

Dr. Siamak Goharkhay

Congress & Exhibition Executive Secretary

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Organizer



سازمان نظام دامپزشکی جمهوری اسلامی ایران
Veterinary Council I.R. IRAN

Aquatic Education

Exotic Animal Medicine for the Clinical Practitioner

October 23-24, 2010

South Padre Island, TX

Presented by the American Association of Zoo Veterinarians

The American Association of Zoo Veterinarians is presenting an in-depth, 2-day course on exotic, zoo, and wild animal medicine Saturday, October 23, 2010 to Sunday, October 24, 2010 at the Isla Grand Beach Resort, South Padre Island, TX. Lectures will be geared to the private exotic animal clinical practitioner and are expected to include topics such as exotic hoofstock, primate and carnivore medicine as well as cutting edge topics in avian, herpetologic and geriatric medicine. Registration includes lecture materials, break refreshments, Sunday evening reception (AAZV conference ice breaker), and certificate of attendance for display in your practice. Class offers 14 hours of CE credits sponsored by the American College of Zoological Medicine.

Registration fee: \$350 by 19 September, \$400 after 19 September 2010.

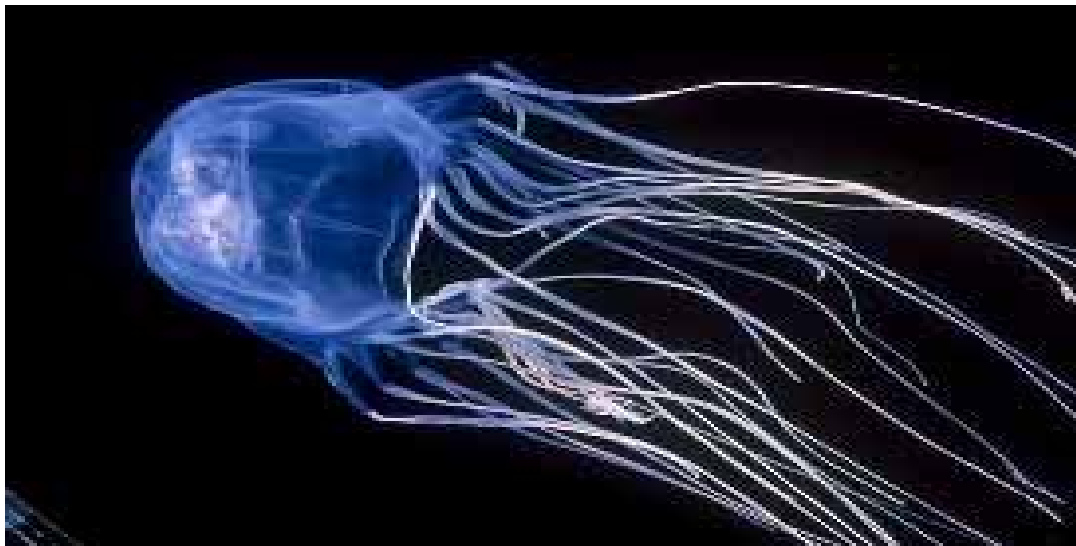
Rooms available at the Isla Grand Beach Resort, 500 Padre Boulevard, South Padre Island, TX 78597-6615, phone (956) 761-6511. Mention AAZV for group discount.

Register at www.aazv.org starting 1 May, 2010, or contact AAZV for a registration form:

AAZV
581705 White Oak Road
Yulee, FL 32097
Telephone (904)225-3275
Fax (904)225-3289

Learn exotic animal medicine from the experts!

Continuing education credits endorsed by the American College of Zoological Medicine



Aquatic Education

26th Caribbean Veterinary Medical Association Conference

“Promoting Animal Health and Welfare for Sustainable Human Development”

November 3-6, 2010.

Ocho Rios, Jamaica.

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 inter-national 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 inter-nationally 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 Opportunities

Post-doctoral Fellow

Marine Animal Health Department of Coastal Sciences, Gulf Coast Research Laboratory, Ocean Springs - University of Southern Mississippi <http://www.usm.edu/gcrl>

Closing Date: Wednesday, June 30, 2010

Qualifications: Earned doctorate in discipline related to epidemiology and pathobiology of fish diseases. The successful candidate will be expected to participate in and build upon aspects of our marine animal health program which presently includes investigations of infectious diseases of marine shrimp and fish. Of particular interest is the parasitic dinoflagellate *Amyloodinium ocellatum* as well as the biology, pathology, diagnosis, and treatment of other pathogens in spotted seatrout, red snapper and other Gulf of Mexico species.

Description: The Thad Cochran Center for Marine Aquaculture, located in Ocean Springs, MS, is part of the Gulf Coast Research Laboratory (GCRL), a unit of the University of Southern Mississippi. GCRL is home to the Department of Coastal Sciences through which the scientific activities of the Center operate. The Center is located on the Cedar Point campus of GCRL, a 225-acre site devoted primarily to marine aquaculture. The Center currently includes approximately 50,000 square feet of culture and research space which includes live feed, broodstock, hatchery, and nursery/growout facilities. An additional 45,000 square feet of culture, laboratory, and research space, including a 25,000 square foot research laboratory with an accompanying 5,000 square foot wet lab facility is currently under construction.

This is a two-year appointment that includes full medical and retirement benefits. Opportunities for advancement and continuance beyond the two year period are contingent upon the candidate's ability to contribute to the program and generate external funding to support his/her research.

The position will be located in the new 25,000 square foot Research Laboratory. Support facilities for research include culture, laboratory and experimental space.

Contact:

Dr. Jeffrey Lotz, Director, Marine Aquaculture and Chair, Department of Coastal Sciences - 228-872-4247
jeff.lotz@usm.edu

Dr. Reg Blaylock, Assistant Director,
Marine Aquaculture - 228-872-4568
reg.blaylock@usm.edu

Aquaculture Researcher

FDA, Veterinary Medicine Office, Laurel, MD, USA

FDA's Center of Veterinary Medicine Office of Research, Aquaculture Team is seeking a candidate to participate in a 2 year research fellowship.

Proposed Appointment Period: From 7/1/10 to 9/30/12.

The candidate will be responsible for conducting research to standardize methods to test the antibiotic susceptibility of aquatic bacteria.

Duties will include performing microbiological and molecular assays, management of laboratory reagents and supplies, and quality control and preparation of the data for presentation. The candidate will be required to maintain and use laboratory equipment including thermocyclers, autoclaves, biosafety cabinets, bacterial identification systems, analytical balances, centrifuges, pH meters.

Additional duties may include participation in aquatic animal research by assisting in the maintenance and husbandry of aquatic organisms in the CVMOR Aquaculture Facility and participation in necropsy examinations. The candidate will also be expected to keep abreast of pertinent literature, and to assist in the preparation of study protocols and research papers.

Stipend is dependent on level of experience. Candidates with a College degree will receive a stipend of approximately \$42,000/ year and with a Master's degree a stipend of approximately \$51,000/year.

The position is located in Laurel, Maryland at the Food & Drug Administration, Center for Veterinary Medicine, Office of Research. Our Aquaculture team is part of the Division of Animal Research.

For more information please contact Charles Giesecker at charles.giesecker@fda.hhs.gov.



Sponsors and Supporters

Aquaculture is regarded as the fastest growing segment of the Agriculture Industry. The need for veterinarians to be involved in Aquaculture is growing as the industry grows. As a result, in 2007 veterinarians from around the world formed a new organization, the **World Aquatic Veterinary Medical Association**. This Association is devoted to serve the discipline of aquatic veterinary medicine in enhancing aquatic animal health and welfare, public health, and seafood safety, and to support the veterinary profession, aquatic animal owners, allied industries, and other associated stakeholders. We provide educational information to veterinarians, and keep them updated on new regulations and other developments through the WAVMA.org website and a quarterly newsletter.

We ask you, as a member of the aquaculture industry, to consider supporting the efforts of WAVMA. Your company can become an annual Sustaining Member and help promote the field of Aquatic Veterinary Medicine. This will not only benefit your company by our promoting it on our website and in our newsletters, but will also positively impact the food finfish and shellfish, and ornamental fish industries by providing better access to veterinarians with an interest in aquatic animal medicine.

Formed as a non-profit Veterinary Association with global membership and influence, the WAVMA programs, actions and services benefit those involved in aquatic veterinary medicine – from the veterinarians to their clients, aquarium keepers, aquatic animal breeders, retail fish stores, public aquariums, fish farmers, aquaculture industries and government agencies. We invite you to join WAVMA as a **Sustaining Member** (*an allied veterinary organization, or a company or entity whose members are predominantly non-veterinarians, and who support the Mission and Objectives of the Association, and financially support the functions of the Association*). All dues contributed to WAVMA (a 501 (C) 6 Corporation) may be fully tax deductible; please consult your tax advisor regarding specific questions of deductibility.

Membership Categories:

Individual Memberships to WAVMA for veterinarians are \$100 per year.

Sustaining Memberships are for an organization, company or entity who supports the Mission and Objectives of the Association. Sustaining Memberships start at \$500 per year.

Direct benefits enjoyed by **Sustaining Members** include:

- An annual roundtable meeting with Executive Board Members at the WAVMA Annual General Meeting
- Complimentary website link from the WAVMA.org website to the company's or organization's website
- Complimentary listing and discounted display advertising in our WAVMA quarterly newsletter
- Access to a pool of key opinion leaders for R&D and Marketplace insights and strategies
- A personalized plaque acknowledging sponsorship (Platinum and Gold level)
- Formal recognition and visibility at the AGM and a high-profile international meetings

Sustaining Membership Categories are:

Platinum Sponsor	\$10,000+
Gold Sponsor	\$5000 +
Silver Sponsor	\$2500 +
Bronze Sponsor	\$1000 +
Supporter	\$500 +

The WAVMA Executive Board looks forward to your support for our vision to advance the field of aquatic medicine worldwide, and to concomitantly promote responsible aquaculture, responsible fish husbandry, and the conservation of our aquatic resources. If you would like additional information concerning WAVMA membership please contact the Secretary, Chris Walster chris.walster@onlinevets.co.uk or go to www.wavma.org.

Contact Corner

2010 WAVMA Executive Board

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eathan@vet.uth.gr

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cypcarpio@aol.com

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chris.walster@onlinevets.co.uk

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dulep@iastate.edu

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Aquatic Veterinary Education Committee- Dr Scott Weber. E-mail: fishdoc@charter.net

Budget and Finance Committee- Dr Dušan Palić. E-mail: dulep@iastate.edu

Communications Committee- Dr Nick Saint-Erne. E-mail: saint-erne@q.com

Credentialing Committee- Dr Ron Roberts. E-mail: heronpisces@btinternet.com

Ethics and Governance Committee- Dr Peter Merrill. E-mail: wetvet@comcast.net

Meetings Committee- Dr Julius Tepper. E-mail: cypcarpio@aol.com

Scholarship Committee - Dr David Scarfe. E-mail: dscarfe@ameritech.net

Koi Pond photograph by Nick Saint-Erne

Past Presidents

Dr. Peter L. Merrill (USA) 2007

Dr. Ron Roberts (UK) 2008

Dr. Hugh Mitchell (USA) 2009



World Aquatic Veterinary Medical Association

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

2010 MEMBERSHIP FORM

New Application or Renewal (check one)

ALL New Members or Current Member changing contact information must complete and submit this form.
(Current members, with no change of address, can renew membership and pay annual dues on-line at www.WAVMA.org)

Please complete all mandatory fields marked with*, as accurately as possible.

Contact Information

*Name (First, Middle, Last) _____ Date _____
Business/Organization Name (if applicable) _____ Position/Title _____
*Mailing Address _____
*City _____ *State/ Province/ Canton/ County (UK) _____
*Zip/Postal Code _____ *Country _____
*Primary Phone _____ is this business ; home ; cell/mobile
Secondary Phone _____ is this business ; home ; 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

- Full Member** (must have graduated from a recognized veterinary school) – US\$100
- Student Member** (must be currently enrolled in a recognized veterinary school or be a graduate veterinarian enrolled in a post-graduate educational program, internship or residency; Student Members receive complimentary (free) Full Membership for the year following graduation from veterinary school) – 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** (must be working under the supervision of a veterinarian) – US\$50
*Name of supervising veterinarian _____; Phone _____; e-mail _____
- Affiliate Member** (non-veterinarian graduate of a nationally recognised university or institution of higher education who supports the Mission and Objectives of the Association) – US\$100
*Degree _____; *Year _____; *University _____; *City _____; *Country _____
- Allied Veterinary Organization Member** (legally formed organization or society whose members are predominantly veterinarians) – US\$500
*Total number of current members _____; *Number (or %) of members that are veterinarians _____;
*Estimated number (or %) of members involved with aquatic veterinary medicine (any species or 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 _____

Membership Annual Dues Payment Options

(New members joining in November/December will be considered paid through December 31 of the following year)

Check One Payment Option: Cheque enclosed; Please charge the credit card below; I will use the secure credit card system on the WAVMA Membership webpage.

Please Mail or Fax this form to:

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

Cheque # _____ attached _____
Please charge my: Visa; **or** Master Card
Name on Card _____
Card Number _____ Expiry Date: _____(Mo); _____(Yr)
Card Security Code _____ Signature _____

All membership applications or renewals will receive an e-mail confirmation once processed.

**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!

We're on the Web:
WWW.WAVMA.org

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.

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.

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