

# Aquatic Vet News



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Newsletter of the World Aquatic Veterinary Medical Association

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

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## EDITOR'S SCALPEL

**CALL FOR CONTRIBUTIONS**—our newsletter is only as good as the information it contains. Please consider contributing information for the next volume of Aquatic Vet News.

Please send any articles, notices, letters etc. to Dr. Chris Walster ([chris.walster@onlinevets.co.uk](mailto:chris.walster@onlinevets.co.uk)) by 15<sup>th</sup> March.

## EXECUTIVE'S ACUMEN

### PRESIDENT'S REPORT

2007 was the first year of the Association's full operation. Started by a small handful of dedicated volunteers in mid-2006, under the direction of Dr. Peter Merrill who served as the interim President, along with Drs. Walster, Palic, Tepper, Miller-Morgan and Johnston who volunteered to serve as interim Directors, much has been accomplished in a short period of time. This internationally-represented group and other volunteers helped put in place the initial formal requirements for what we hope will become a large all-encompassing organization to serve and

represent aquatic veterinary medicine on all continents.

This effort placed great demands on these individuals and I am sure that all members will join me in thanking them for these efforts. Impressively they all stepped forward to continue their efforts when many actions were formalized at the first Annual General Meeting. As President for 2008 I expect to call on their expertise frequently as I try to guide the ship forward over the next year.

Our 2007 accomplishments were great and included:

- Filing and having the Association registered as a non-profit entity able to do business globally;
- Rallying of more than 70 veterinarians and veterinary students wanting to be Founding Members;
- Support of more than 10 entities that recognize the value of aquatic veterinary medicine, including financial sponsorship, assisting by serving as an interim agent and place of business;
- Organizing and conducting its first annual general meeting, with world leaders in veterinary medicine as speakers, in conjunction with a National veterinary association's annual convention and;
- Developing and member ratification of the Association's Bylaws;
- Electing a new slate of Officers and Directors who will function as the Executive Board;
- Changing the organization's name from the Aquatic Veterinary Association to the World Aquatic Veterinary Medical Association to reflect the global nature of what we stand for;
- Establishing a number of strategic goals for the future; and,
- Starting the formation of a number of key committees.

WAVMA received deeply appreciated financial support during 2007 from a select group of corporate sponsors who are closely aligned with the world of aquatic animal health. These included (in alphabetical order): Aquatic Ecosystems/Aquatic Habitats, Inter-Research, Intervet, Novartis, Pharmaq, Syndel and Western Chemical, as well as a number of individual donors. The American Veterinary Medical Association stepped forward to serve as the initial agent and place of business to allow us to file our Articles of Incorporation as a non-profit organization.

The first General Meeting, a forum that will be convened annually, was held in Washington, DC on July 19, 2007, in association with the American Veterinary Medical Association's national conference. The AVMA kindly donated space and in-kind logistical support to WAVMA for this function, which was presided over by Dr. Peter Merrill, 2007 Founding President of the association, and attended by more than 50 founding members and supporters. Members in attendance were given historical, current and forward-looking perspectives for practitioners of aquatic animal medicine by a number of nationally and internationally known speakers.

Keynote speeches were provided by Dr. Greg Hammer, President of the AVMA, and Dr. Leon Russell, President of the World Veterinary Association. Other speakers included Dr. Nick Blaney (British Veterinary Association), Dr. Carol McClure (Eastern Aquaculture Veterinary Association), Dr. Leigh Clayton (Association of Reptile and Amphibian Veterinarians), Dr. Hamish Rodger (Fish Veterinary Society), Dr. John Drake (Canadian Veterinary Medical Association), and Dr. Julius Tepper (International Association for Aquatic Animal Medicine). Luncheon and dinner receptions provided additional opportunities for member discussions on the way forward for WAVMA.

The Founding Members voted at the General Meeting to approve the Bylaws, and to change the Association's name from the *Aquatic Veterinary Association* to the *World Aquatic Veterinary Medical Association* to better reflect the scope and direction of the group.

That way forward is being pursued with diligence. The newly-elected WAVMA directors for 2008 include Dr. Ronald J. Roberts as incoming President, Dr. Hugh Mitchell as President-Elect, Dr. Peter Merrill as Immediate Past-President, Dr. Chris Walster as Secretary, Dr. Dusan Palic as Treasurer, and Drs. Tim Miller-Morgan and Julius Tepper as Directors-at-Large. These individuals now comprise the WAVMA Executive Board, and will continue to meet at least monthly. Throughout 2007, WAVMA's Executive Board also received the indispensable guidance of Dr. David Scarfe, who provided parliamentary, technical and other advice to the group that enabled it to transition through a complicated and important year.

One of the first orders of business for the Executive Board after the 2007 Annual General Meeting was to prioritize the goals of developing a better and more comprehensive internet presence, and begin refining the Bylaws and other legal documents to facilitate the functional operations of the Association, and developing the charters for key committees. These

charters were formalized in November of 2007, and the list of formed committees currently includes a Budget and Finance, Communications, Aquatic Veterinary Education, Meetings, Membership and Practitioner Credentialing. Members indicating a preference for participating in, and developing at least one committee have been invited to volunteer their time and expertise.

2008 promises to be an ever greater year with the Executive Board looking to refine the bylaws further; develop operating budgets; assist in the establishment of committees to help develop membership programs; and, with the assistance of legal counsel, file documents to have WAVMA recognized as a 501(c)(6) corporation (tax-exempt business league) specifically intended to promote and improve the members' common business interests, and the conditions for practicing aquatic veterinary medicine.

Late in 2007, the Executive Board discussed options for the 2008 Annual General meeting and decided to lend WAVMA's name and expertise to developing the aquatic veterinary education program for the World Veterinary Congress in Vancouver, British Columbia, Canada (July 27-31, 2008). In return the WAVMA was provided space for the AGM, committee meetings and a reception. We are also planning additional WAVMA activities and programs in conjunction with other national meetings elsewhere in the world. Specifics will be forthcoming, so stay tuned.

The Executive Board is also examining possibilities for collaborating with a publisher for a journal focused on the practice of aquatic animal medicine useful for private practitioners and we hope to revise and revamp the Association's website.

**Ron Roberts, 2008 President**

## **SECRETARY'S REPORT**

It is somewhat difficult to write this brief report for what might be seen as only six months since the formation of WAVMA but in fact is the end of our first fiscal year. This report is not only looking back at what has been achieved in the previous year but also looks forward to some of the highlights of the coming year. The role of Secretary is to act as the first point of contact with the association either by outside organisations or queries raised by the membership. The second role is to accurately report and keep records of the association's activities during the year. Because of these two roles the Secretary plays an important role in the association's communications and interactions with its members and others.

2007 saw the formation of the WAVMA, our AGM in July, the establishment of a preliminary website and publishing the first editions of a newsletter in June and October. Thanks should be given to the Interim Directors for the work that was done in ensuring that the AGM was so successful. Press release on the formation of our new organization and reports on the AGM were carried in many professional journals, organisation newsletters and industry magazines throughout the world.

Following on from the AGM a lot of behind the scenes work has been carried out by the Executive Board to establish an "Administrative and Operations Policy Manual" and "Manual of WAVMA Policies Affecting the Practice of Aquatic Veterinary Medicine" along with ensuring that we comply with US regulations for "not for profit organisations". Various committees have also been established to ensure that the WAVMA functions effectively and fulfils its mission statement. Members of the EB have also been involved in organising the aquatic education program of the 2008 World Veterinary Congress in Vancouver, Canada, which is also the venue for the 2008 WAVMA AGM.

Looking forward the Aquatic Vet News will be a quarterly publication and the web site will be revamped and extended to provide more information to members and others interested in aquatic veterinary medicine. With the AGM and other WAVMA activities being held during the World Veterinary Congress this will be another high profile opportunity to promote the Association.

From where we were 12 months ago a lot has been achieved and this coming year will build on that progress. Without input from the membership and the support of our sponsors none of this would happen. I would like to thank all who have assisted me in my role of Secretary, contributed in whatever way to the Association and the generosity of our sponsors.

**Chris Walster, Secretary**



## MEMBER'S MOMENTS

### VALUE OF USING SALT IN FRESHWATER AQUATIC SYSTEMS ON A CONTINUAL BASIS?

I would like to know of anyone's experience in using continuous low levels of salt in freshwater tropical fish. There is a benefit of adding salt (NaCl) for minimizing nitrite toxicity, but is there any value in the absence of elevated nitrite levels? Are there any documented scientific reports on other benefits of salt?

**Nick Saint-Erne, DVM**

Quality Assurance Veterinarian

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*[Editor's note: a brief article contributed by any member for the next edition of Aquatic Vet News would be most welcome.]*

## ASSOCIATION'S ENDEAVORS LOGO DEVELOPMENT

The Executive Board wishes to thank all those members who sent in their ideas for our logo. Many interesting layouts were discussed and some good conceptual outlines emerged as possibilities. At their January 2008 meeting the Board approved that a professional designer use these concepts to develop a unique logo that will create a professional image and branding for the Association. We anticipate having our logo approved and ready for debut at our next Annual General Meeting in Vancouver in July 2008.

**Julius M. Tepper, contributor**

## FORMATION OF WAVMA COMMITTEES

In November 2007 the Executive Board decided to place a priority on developing committees to enable members to actively participate in the activities of the Association. The Board decided to initially encourage the formation of the following committees and assigned a Board member to serve on and help facilitate these committees:

- Communications Committee – Walster
- Budget and Finance Committee – Palic
- Ethics & Governance Committee – Merrill
- Membership Committee – Palic
- Meetings Committee – Tepper
- Aquatic Veterinary Education Committee – Miller-Morgan
- Veterinary Practitioner Credentialing Committee – Roberts

In accord with the bylaws, each committee will need to consist of at least three Full Members who need to refine and document the structure and charge of the committee for the approval of the Board.

These committees afford the opportunity for other members of our association to both express their opinions, as well as share in the work needed to make us as successful as we can be. Many of those members "seeded" onto these various committees were asked based on their having offered to help by checking off on the membership application form. We made a strong effort to recommend members based not only on their personal abilities and desires, but also on their geographical location. We will only be a truly international association if all members around the world are represented. If you haven't been contacted and wish to help on any committee, please let us know.

**Julius M. Tepper & Chris Walster, contributors**

### **COMMUNICATIONS COMMITTEE**

Shortly after the New Year the Board approved the charge and structure of this committee. Its objective is to foster communications within WAVMA membership, and with others involved with aquatic veterinary medicine by assisting the development and maintenance of the Association's website; list-serves and other electronic communications mechanisms for members; an Association newsletter; and also to explore other forms of communications to benefit members and the Association. Currently four members have expressed interest in participating and should other WAVMA members have expertise or an interest in any of the committee's current endeavors, please contact me.

**Chris Walster, contributor**

### **MEETINGS COMMITTEE**

The Meetings Committee has been formed, in accordance with our bylaws, to begin the work of planning for our all-important Annual General Meetings. For the moment, we have 3 members on this committee, including myself. It is always beneficial to have as many diverse views as possible on this committee, so if anyone out there is interested in helping in any capacity, by all means contact me. Once we have met to discuss the charge of our committee and refine the scope of what we are expected to handle, we can begin the task of both locating venues for our next few meetings and planning the logistical aspects of the meetings themselves. There is a huge amount of work behind the scenes that is required to make these meetings a success, so please let me know if any of you wish to

be involved in planning or in the legwork sometimes needed on site.

**Julius M. Tepper, contributor**

### **CLINICAL CLIPS**

**Negative effects of malachite green and possibilities of its replacement in the treatment of fish eggs and fish: a review.** Sudova, E., J. Machova, Z. Svobdova, T. Vesely (2007). *Veterinarni Medicina*, 52, 2007 (12): 527-539 (downloadable at [www.vri.cz/docs/vetmed/52-12-527.pdf](http://www.vri.cz/docs/vetmed/52-12-527.pdf)).

Malachite green has been used as an effective compound to control external fungal and protozoan infections of fish since 1933 but it has never been registered as a veterinary drug for use in food fish because of its potential carcinogenicity, mutagenicity and teratogenicity in mammals. The present paper reviews negative side effects of malachite green including its accumulation and persistence in fish that have been treated and describes other alternative substances for the treatment of fish and fish eggs.

**Isolation of *Aeromonas salmonicida* from sea lamprey (*Petromyzon marinus*) with furuncle-like lesions in Lake Ontario.** Faisal M, Eissa AE, Elsayed EE. (2007). *Journal of Wildlife Diseases* 43:618-22.

For the past six decades, parasitic sea lampreys (*Petromyzon marinus*) have caused devastating losses to salmonid fisheries in the Great Lakes. To reduce the number of sea lampreys, the Great Lakes Fishery Commission began a large-scale program based on trapping male sea lampreys, sterilizing them, and releasing sterile males back into streams to compete with fertile males for spawning females. The transfer of lampreys among lakes can potentially lead to the transfer of various pathogens, and this has raised major concerns regarding the possibility of resident fish populations becoming infected by introduced pathogens. During a health inspection of sea lampreys collected from Lake Ontario, lampreys with obvious furuncle-like lesions (1-2 cm in diameter) were noticed. Most of the furuncles occupied the dorso-lateral musculature, and *Aeromonas salmonicida* subsp. *salmonicida* was isolated from the kidneys. This bacterium was cultured from kidneys of 2.5% of the sea lampreys collected from two locations within the Lake Ontario watershed in 2004. The identity of bacterial colonies was presumptively verified with biochemical reactions and confirmed with polymerase chain reaction. This is the first report of *A. salmonicida* infection in sea lamprey in the Great Lakes basin associated with furunculosis.

**Zygoty at the major histocompatibility class IIB locus predicts susceptibility to *Renibacterium salmoninarum* in Atlantic salmon (*Salmo salar* L.).** Turner SM, Faisal M, De Woody JA (2007).

*Animal Genetics* 38(5):517-9

Major histocompatibility (MH) class II genes play an important role in the vertebrate immune response. Here, we investigate the relationship between Atlantic salmon (*Salmo salar*) MH class IIB zygosity and susceptibility to *Renibacterium salmoninarum*, the causal agent of bacterial kidney disease. By combining DNA sequences from the salmon MH class IIB gene with quantitative ELISA data on *R. salmoninarum* antigen levels, we found that MH class IIB homozygotes were significantly more susceptible to *R. salmoninarum* than heterozygotes. These findings are discussed in the context of current evolutionary theory.

**Matrilin-like molecules produced by circulating hemocytes of the zebra mussel (*Dreissena polymorpha*) upon stimulation.** Xu W, Faisal M. (2007). *Developmental and Comparative Immunology* 31:1205-10.

Since invading the Great Lakes basin, USA, in 1980s, the zebra mussel (*Dreissena polymorpha*) has caused significant economic and ecologic devastation. The absence of major diseases led to the belief that zebra mussel may have extraordinary host defense mechanisms. This study was undertaken in order to better understand zebra mussel hemocyte functions. A suppressive subtraction hybridization (SSH) cDNA library was constructed from naïve and stimulated hemocytes. Stimulation was performed using a mixture of lipopolysaccharide (LPS), peptidoglycan (PGN), and zymosan (ZYM). In the stimulated hemocyte SSH cDNA library, 55 assembled ESTs were differentially expressed. These ESTs contained two putative immune-related molecules, namely, matrilin and agglutinin, three house-keeping genes, six cell metabolism/development genes, and 44 ESTs without putative functions. One of the putative adhesive molecules (CN-29, accession number: AM503947) was predicted to have homology with matrilins including the Von Willebrand Factor A (VWA) domain, which was identical to a matrilin molecule recently reported from the freshwater snail, *Biomphalaria glabrata*. Preliminary evidence suggests that the zebra mussel matrilin-like molecule is inducible upon hemocyte stimulation.

**The innate immune response of finfish – A review of current knowledge.** Whyte SK (2007). *Fish & Shellfish Immunology*, 23(6):1127-1151.

The decline in the fisheries of traditional marine species has been an incentive for the diversification

of today's aquaculture sector into the intensive rearing of many finfish species. The increasing interest in commercial farming of different finfish species is expected to result in similar environmental and husbandry-related problems as have been experienced in the development of the salmonid farming industry. An understanding of the biology of the fish species being cultured, in particular the immune response is important for improved husbandry and health management of the species. The innate immune system of fish has generated increasing interest in recent years and is now thought to be of key importance in primary defence and in driving adaptive immunity. This review focuses on key components (cellular and humoral) of the innate immune responses of different fish species of commercial importance.

**Vaccination experiments in the gadoid haddock, *Melanogrammus aeglefinus* L., against the bacterial pathogen *Vibrio anguillarum*.** Corripio-Miyar Y, Mazorra de Quero C, Treasurer JW, Ford L, Smith PD & Secombes CJ (2007) *Veterinary Immunology and Immunopathology*, 118(1-2): 147-153.

*Vibrio anguillarum* is one of the primary pathogens responsible for high levels of fish mortality in the aquaculture industry, and among gadoids O2a and b are the most common pathogenic serotypes. In this paper a variety of studies were performed to assess the optimal route by which to challenge haddock against this pathogen, and an optimal regime to vaccinate haddock. The most efficient method to challenge haddock with *V. anguillarum* in this study was immersion in a bath containing 10<sup>7</sup> cfu/ml, where 60% mortality was seen. Subsequent experiments showed that juvenile haddock could be protected against bacterial challenge with *V. anguillarum*, with a significant reduction in mortalities observed amongst the vaccination treatments when compared to the unvaccinated controls. However, as seen previously in cod studies, vaccination did not induce a specific antibody response.

**Prescription of antimicrobial drugs in Norwegian aquaculture with an emphasis on “new” fish species**

Grave K, Kjerulf Hansen M, Kruse H, Bangen M & Bråthen Kristoffersen A (2007) *Preventive Veterinary Medicine*, 83(2):156-169. The usage of antimicrobial (AM) drugs in farmed fish in Norwegian aquaculture for the period 2000–2005 was investigated by using prescription data. These data were validated against national sales data of AM drugs sold for use in farmed fish and were found to be highly valid. The defined course dose (DCD) was applied as the unit of measurement to correct for the variations in the dosages between different AM drugs.

The DCD<sub>kg</sub> was the amount of an AM drug recommended for the treatment of a 1-kg fish. The calculated number of prescribed DCD<sub>kg</sub>s is an estimate of the biomass of farmed fish that can be treated with a certain amount AM drug. In the present study, the number of prescriptions issued (i.e., numbers of initiated treatments), weight of active substance prescribed and biomass treated were applied to describe the usage. An increase, although modest, in the AM drug usage in Norwegian aquaculture was observed from 2002 to 2005. This increase was accounted for by new-farmed fish species (other than Atlantic salmon and rainbow trout), especially Atlantic cod. The increased usage of AM drugs in cod in the study period was significantly positively correlated to the biomass produced; even so from 2001 to 2005 the number of prescriptions for cod relative to the produced biomass declined. The AM drug usage in Atlantic halibut as well as the production varied during the study period. For other species such as turbot, coalfish and wolffish the usage of AM drugs was found to be negligible. "Mono-therapy" with quinolones may present a selective pressure in regard to development of quinolone resistance.

**Prevalence and Diversity of Antibiotic Resistant *Escherichia coli* in Bottlenose Dolphins (*Tursiops truncatus*) from the Indian River Lagoon, Florida, and Charleston Harbor Area, South Carolina.**

Thomas W. Greig, John A. Bemiss, Barbara R. Lyon, Gregory D. Bossart, and Patricia A. Fair  
*Aquatic Mammals* 2007, 33(2), 185-194.

A total of 724 *Escherichia coli* isolates sampled from 38 wild bottlenose dolphins (*Tursiops truncatus*) from the Charleston Harbor area, South Carolina, and the Indian River Lagoon, Florida, were screened for resistance to 25 antibiotics. The percentages of animals harboring at least one resistant isolate differed significantly between sampling locations. No resistance was detected in *E. coli* from dolphins at either site for six of the 5 antibiotics tested.

Resistance to penicillin was most common followed by cephalothin, ampicillin, and amoxicillin. Within-animal isolate variability was examined in addition to between sampling locale. Isolates from animals sampled in the Charleston Harbor area exhibited a greater complexity of resistance patterns and within individual diversity compared to isolates sampled from animals in the Indian River Lagoon. Causes related to the observed heterogeneity are discussed.

**Cardiomyopathy and Myocardial Degeneration in Stranded Pygmy (*Kogia breviceps*) and Dwarf (*Kogia sima*) Sperm Whales.**

Gregory D. Bossart, George Hensley, Juli D. Goldstein, Kenny Kroell,

Charles A. Manire, R. H. Defran, and John S. Reif.  
*Aquatic Mammals* 2007, 33(2), 214-222

Cardiomyopathy (CMP) has been documented as a disease associated with stranded pygmy (*Kogia breviceps*) and dwarf (*Kogia sima*) sperm whales in the United States and Asia. In this study, hearts from 27 pygmy and two dwarf sperm whales stranded in the coastal U.S. Atlantic Ocean and Gulf of Mexico from 1999 to 2006 were analyzed. Gross and microscopic examinations were conducted according to a standardized protocol

Designed to ensure systematic examination of tissue and data recording. Hearts were weighed and specific measurements made for selected tissues. Fourteen (48.3%) pygmy sperm whales had a microscopic diagnosis of CMP, 12 (41.4%) showed evidence of mild myocardial degeneration (MCD), one (3.4%) had moderate myocarditis and two (6.9%) had no pathological lesions. One dwarf sperm whale had CMP, and the other had mild MCD. The majority of stranded *Kogia* spp. with cardiac lesions came from the southeast Atlantic region (19/27, 70.3%). Cardiomyopathy and MCD lesions were found predominantly among adult whales. An excess of males was found for CMP and MCD (approximately 75% of both groups). The predominant histological lesions found in both disorders were anisokaryosis with karyomegaly and nuclear rowing, followed in frequency by interstitial edema. Cardiac weight, ventricular wall thickness, and valve circumference were compared between pygmy sperm whales with CMP and those with MCD. The largest differences were found for heart weight and intraventricular septum wall thickness, but none of the differences were statistically significant. Further adjustment for sex and body length did not alter the results. In the aggregate, these findings suggest that CMP in *Kogia* spp. is a chronic, progressive condition that represents a continuum from MCD to the more severe forms of the disorder. The etiology of this complex disorder remains unknown.

**Hematologic, Biochemical, and Cytologic Findings from Apparently Healthy Atlantic Bottlenose Dolphins (*Tursiops truncatus*) Inhabiting the Indian River Lagoon, Florida, USA.**

Juli D. Goldstein, Eric Reese, John S. Reif, Rene´ A. Varela, Stephen D. McCulloch, R. H. Defran, Patricia A. Fair, and Gregory D. Bossart. *Journal of Wildlife Diseases*, 42(2), 2006, pp. 447-454.

The objective of this study was to establish reference baseline data for hematologic, biochemical, and cytologic findings in apparently healthy Atlantic bottlenose dolphins (*Tursiops truncatus*) inhabiting the Indian River Lagoon, Florida, USA. Sixty-two dolphins were captured, examined, and released

during June 2003 and June 2004. Mean, standard deviation, and range were calculated for each parameter, and values for which published data were available, were close to or within the ranges previously reported for free-ranging bottlenose dolphins. No pathologic abnormalities were found in fecal and blow hole cytologic specimens. However, 24% (7/29) of the dolphins examined in 2003 had evidence of gastritis, which was graded as severe in 14% (4/29) of the cases. In 2004, only 4% (1/24) of dolphins sampled had evidence of mild or moderate gastritis; no severe inflammation was present. Dolphins with evidence of gastritis were 8 yr of age or older and predominantly male. Several statistically significant differences were found between males and females, between pregnant and nonpregnant animals, and between juveniles (6 yr) and adults (\$6 yr). However, the values remained within the established ranges for this species, and the differences were not likely to be of clinical significance.

## NEW DRUGS & BUGS

For ornamental fish vets in the UK, a soluble praziquantel licensed under Schedule 6 of the VMR 2007 has recently become available. The product is called Cedapraz and is produced in two pack sizes. Further information can be obtained from Fiona Macdonald ([ffv@btinternet.com](mailto:ffv@btinternet.com)).

## BARRISTER'S BARRAGE

### UPDATES PLANNED FOR THE U.S. NATIONAL VETERINARY ACCREDITATION PROGRAM (NVAP)

The National Veterinary Accreditation Program (NVAP) is a voluntary program run by the USDA, Animal and Plant Health Inspection Service (APHIS). USDA-APHIS accredits private veterinary practitioners in the United States to undertake some regulatory work (usually reserved for government officials) in cooperation with, and under the oversight of Federal and State animal health officials.

The NVAP has a long history dating back to the early 1900s when additional veterinarians were needed to supplement the government-employed veterinary workforce in the event of an animal (primarily livestock) disease outbreak. Since then it has evolved and currently the U.S. has about 60,000-plus accredited veterinarians, most of whom go through NVAP training and accreditation early in their career.

Other countries (Canada, Australia, New Zealand, UK) have similar government veterinary accreditation programs that already have, or may revise their

programs to include aquatic animals; Australia did so in 2003 with the 'Accreditation Program for Australian Veterinarians'; the UK may include aquatic veterinarians in the 'Official Veterinarian Reform Programme (OVRP)'; other countries still have to decide. One of the important duties is to assist producers that export animals and rely on the expertise of accredited veterinarians to help ensure that exported animals will not introduce diseases into another State or country.

In 2002 an AVMA-USDA Relations Committee proposed revising the NVAP which, for the first time, included aquaculture (Torres, et al, 2002. JAVMA 220 (10): 1470-1472). In 2006 USDA proposed changes to the Code of Federal Regulations to accommodate many of the proposals. An important part of the revised NVAP will be continuing education programs to assist veterinarians stay abreast of new developments.

In order to provide better services to the aquaculture industry, in late 2007 the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) funded the development of three, approximately 45-minute, web-based educational modules focused on the knowledge base accredited veterinarians should possess in order to conduct regulatory activities in aquatics. This certification will be available to all accredited veterinarians through an on-line venue. Completion of the modules is estimated for 2009.

The modules are being developed by the Iowa State University, College of Veterinary Medicine's Center for Food Security and Public Health (CFSPH). The Center was established in July 2002 with the mission of increasing national preparedness for accidental or intentional introduction of disease agents that threaten food production or public health. The Center has been funded by a number of grants and cooperative agreements from the USDA and the Centers for Disease Control and Prevention.

While the modules and web-based platform are being developed by CFSPH, input to the modules is being provided by a broad range of expertise including members of the American Veterinary Medical Association's Aquatic Veterinary Medicine Committee, the Department of Health and Human Services Food and Drug Administration, the Canadian Food Inspection Agency, the U.S. Fish and Wildlife Service, the National Oceanographic and Atmospheric Service, representatives from State regulatory agencies, private practitioners, university academicians, and industry representatives.

**Gary Egrie, contributor**

## **TWO CURRENT DEFRA CONSULTATIONS**

Consultation on Implementation of EU Legislation (EU Directive 2006/88) in England and Wales: Aquatic Animal Health Directive. The closing date for this consultation is the 7<sup>th</sup> March 2008. Further information can be found at:

<http://www.defra.gov.uk/corporate/consult/aquatic-ah/index.htm>.

Consultation on responsibility and cost sharing for animal health and welfare. The closing date for this consultation is the 15<sup>th</sup> April 2008. Further information can be found at:

<http://www.defra.gov.uk/corporate/consult/ahw-nextsteps/index.htm>.

## **ADVANCING AQUATIC EDUCATION**

**January 21-23, 2008. Alaska Marine Science Symposium. Captain Cook Hotel, Anchorage, Alaska, USA.** For more information go to [www.nprb.org](http://www.nprb.org).

**February 12-15, 2008. Course on Practical Ichthyopathology: Prevention, diagnostics, and health control in Mediterranean marine aquaculture.** University of Barcelona, Barcelona, Spain. For more information contact [francesc.padros@uab.cat](mailto:francesc.padros@uab.cat).

**February 22-24, 2008. Shark Reef 3<sup>rd</sup> Annual Aquatic Medicine Seminar, Shark Reef at Mandalay Bay, Las Vegas, Nevada, USA.** For more information contact [JJewell@mandalaybay.com](mailto:JJewell@mandalaybay.com).

**March 31-April 1, 2008. International Conference Sea Lice 2008.** Puerto Montt, Chile. For more information go to <http://epi.cis.strath.ac.uk/SeaLice2008>.

**March 31-April 4, 2008. Eastern Fish Health Workshop, Atlantic Beach, North Carolina, USA.** Includes a special session on VHS. Abstracts and early registration due 1 February. For more information contact [rcipriano@usgs.gov](mailto:rcipriano@usgs.gov)

**April 9, 2008. Fish Veterinary Society Scientific Meeting on Fish Welfare.** Edinburgh UK. For more information contact [fvst@btinternet.com](mailto:fvst@btinternet.com).

**April 9-11, 2008. Davis Foundation Diagnostic Pathology of Aerial, Terrestrial, and Aquatic Wildlife Course.** Madison, Wisconsin, USA. For more information go to [www.cldavis.org/courses/upcoming.html#66](http://www.cldavis.org/courses/upcoming.html#66).

**April 22-25, 2008. Florida Marine Mammal Health Conference III. Whitney Laboratory for Marine Bioscience, Marineland, Florida and St. Augustine Beach, Florida, USA.** For more information go to [www.conference.ifas.ufl.edu/marinemammal](http://www.conference.ifas.ufl.edu/marinemammal).

**May 8-22, 2008. XXXI International meeting for the Study of Marine Mammals, Ensenada, Baja California, Mexico.** For more information go to [www.somemma.org](http://www.somemma.org).

**May 10-14, 2008. IAAAM 39th Annual Conference. Rome, Italy.** For more information go to [www.iaaam.org/meeting.php](http://www.iaaam.org/meeting.php)

**May 18 – May 31, 2008. AQUAVET II. University of Pennsylvania & Cornell University. Woods Hole, MA, USA.** For more information go to [www.aquavet.info](http://www.aquavet.info).

**May 18 – June 14, 2008. AQUAVET I. University of Pennsylvania & Cornell University. Woods Hole, MA, USA.** For more information go to [www.aquavet.info](http://www.aquavet.info).

**June 2-13, 2008. Diseases of Warmwater Fish - Specialized Training for the Aquatic Health Practitioner.** University of Florida Extension, Ruskin and St. Augustine, FL, USA. For more information go to [www.conference.ifas.ufl.edu/ame/wwf](http://www.conference.ifas.ufl.edu/ame/wwf).

**June 16-27, 2008. SEAVET I. University of Florida. Cities TBA, Florida, USA.** For more information go to [www.conference.ifas.ufl.edu/ame/seaveti](http://www.conference.ifas.ufl.edu/ame/seaveti).

**July 9-12, 2008. 2008 Annual Meeting of the FHS-AFS.** Charlottetown, Prince Edward Island, Canada. For more information go to [www.upei.ca/FHS-AFS2008](http://www.upei.ca/FHS-AFS2008).

**July 19-22, 2008. Aquatic Veterinary Medicine Sessions – 145<sup>th</sup> AVMA Annual Convention.** New Orleans, Louisiana, USA. For more information go to [www.avmaconvention.org](http://www.avmaconvention.org).

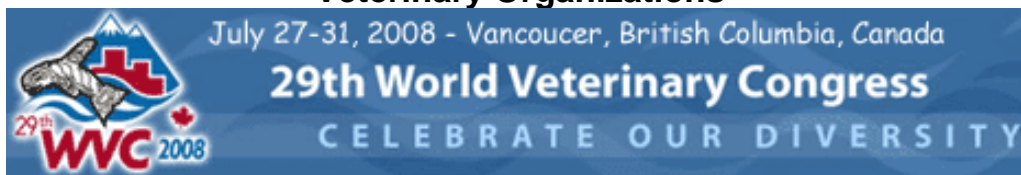
**July 27- 31, 2008. Aquatic Veterinary Medicine Program – World Veterinary Congress.** Vancouver, British Columbia, Canada. For more information go to [www.worldveterinarycongress2008.com](http://www.worldveterinarycongress2008.com).

**July 28-31, 2008. Blacksburg, Virginia, USA. Recirculating Systems - Shrimp Production Short Course.** For complete information see [www.bee.cornell.edu/cals/bee/outreach/aquaculture/short-course/index.cfm](http://www.bee.cornell.edu/cals/bee/outreach/aquaculture/short-course/index.cfm).



## WAVMA ANNUAL GENERAL MEETING AND CE PROGRAM

### Join the World Aquatic Veterinary Medical Association and other International Veterinary Organizations



Go to [www.meet-ics.com/wvac2008](http://www.meet-ics.com/wvac2008) for all WVC online information

#### EARLY BIRD REGISTRATION FEE NOW AVAILABLE

The 29th World Veterinary Congress is pleased to announce that **Online Registration** is open! Take advantage of the Early Bird Registration Fee by submitting your registration before the Early Deadline. Hotel Accommodations can also be made through the Registration Form.

**EARLY BIRD REGISTRATION DEADLINE: 4 APRIL 2008**

#### SCIENTIFIC/EDUCATION PROGRAM

The Scientific Committee has put together an exciting educational world-class scientific and educational program that will be of interest to all veterinarians, as well as para-veterinarians, veterinary technicians and others who partner in animal care. Programs have two primary tracks: **Clinical Practice/Private Practice**, and **Public Practice/Public Health**. See an outline of WAVMA scheduled programs below.

#### OPTIONAL TOURS

Vancouver, Canada is a beautiful and inviting city. Situated on our West Coast it has the Pacific Ocean at its foot and the grand Coastal Mountains at its back. The city itself offers unlimited opportunities for visitors to relax, dine, shop or participate in a host of adventure activities, such as: whale watching, salmon fishing, ocean kayaking, mountain climbing, sight seeing and much more. **Book your Optional Tours now through the Congress Website.**

#### SOCIAL EVENTS

The Congress will be hosting a number of social events to ensure that you experience the flavor and culture of Vancouver and Canada. Details are on the website.

#### WAVMA PROGRAMS

See attached program at-a-glance for scheduled meetings. **PLEASE NOTE: the Thursday WAVMA Special Session still has to be confirmed.** Final detail of all WAVMA programs will be distributed shortly.



29th World Veterinary Congress (July 27-31, 2008 Vancouver, British Columbia, Canada)  
**Aquatic Veterinary Program** (Clinical Practice/ Private Practice Sessions)

Time	WAVMA Activities		Congress General Sessions		Breaks/Open		WVC-WAVMA CE Sessions	
	Sunday July 27	Monday July 28	Tuesday July 29	Wednesday July 30	Thursday July 31			
8:00		<b>Opening Ceremony</b>						
8:30		<b>KEYNOTE SPEAKERS</b> One World - One Medicine - One Health	European Aquatic Animal Health Programs <i>Chris Walster (UK)</i>	<i>Eva-Maria Bernoth (Australia)</i> Approaches to Emerging Aquatic Diseases	Evidence-based Epidemiology/Surveillance <i>Larry Hammell (Canada)</i>			
8:45		<i>Bernard Vallat (France) &amp; Brian Evans (Canada)</i>	Asian Aquatic Animal Health Approaches <i>Rohana Subasinghe (Italy)</i>	Infectious Salmon Anemia: The International Perspective <i>Larry Hammell (Canada) &amp; Hamish Rodger (Ireland)</i>	<b>WAVMA Special Session (Tentative)</b> Emerging Aquatic Issues—Anti-Aquaculture Advocacy Challenges—			
9:00		Exhibit Hall Break	Koi Herpesvirus: The International Perspective <i>Chris Walster (UK)</i>					
9:15		<b>KEYNOTE SPEAKERS</b> One World - One Medicine - One Health	Exhibit Hall Break	Exhibit Hall Break	Exhibit Hall Break			
9:30		<i>Lonnie King (USA) &amp; Hugh Lewis (USA)</i>	How to Expand Cat/Dog/ Exotic Animal Practice Into Aquatics <i>Helen Roberts (USA)</i>	Viral Hemorrhagic Septicemia: International Perspective <i>Grace Karreman (Canada) &amp; Hamish Rodger (Ireland)</i>	<b>WAVMA Special Session (Tentative)</b> Emerging Aquatic Issues—Aquatic Animal Welfare—			
9:45								
10:00	WAVMA Board & Committee Meetings Open to Members (Room: TBA)							
10:15		Break for Lunch	Break for Lunch	Break for Lunch	Break for Lunch			
10:30								
10:45								
11:00								
11:15								
11:30								
11:45								
12:00 - 13:15	Break for Lunch	Break for Lunch	Break for Lunch	Break for Lunch	Break for Lunch			
13:30								
13:45	WAVMA AGM Open to all interested parties (Room: TBA)	World Organisation for Animal Health (OIE); Australia's AQUAPLAN & AQUAVETPLAN <i>Eva-Maria Bernoth (Australia)</i>	Infectious Ornamental/ Pet FinFish Diseases <i>Helen Roberts (USA)</i>	VHS (cont) <i>Karreman/ Rodger</i>	<b>WAVMA Special Session (Tentative)</b> Emerging Aquatic Issues—Non-Veterinarians in Veterinary Practice—			
14:15			Noninfectious Ornamental/ Pet Finfish Diseases <i>Helen Roberts (USA)</i>	Bacterial Kidney Disease: International Perspective <i>Hamish Rodger (Ireland) &amp; Larry Hammell (Canada)</i>	Coffee/Tea Break			
14:30								
14:45								
15:00	Tea/Coffee Break	Exhibit Hall Break	Exhibit Hall Break	Exhibit Hall Break				
15:15								
15:30	WAVMA AGM (cont) (Room: TBA)	Evolution of Canada's NAAH Program <i>Grace Karreman (Canada)</i>	European Aquatic Therapeutics and Biologics <i>Chris Walster (UK)</i>	BKD (cont) <i>Rodger/ Hammel</i>	<b>WAVMA Special Session (Tentative)</b> Developing Solutions to Emerging Issues Panel/Audience Open Discussion			
15:45								
16:00								
16:15		Evolution of the USA's NAAH Plan <i>Gary Egrie (USA)</i>	North American Aquatic Therapeutics and Biologics <i>Jim Brackett (Canada)</i>	Diseases – Synopsis & Panel/Audience Discussion				
16:30								
16:45								
Evening	Congress Welcome Reception 19:00–21:30		WAVMA Reception 19:00–21:00 (Room: TBA)	Congress Banquet 19:30–22:00	WAVMA Board Meeting (Room: TBA)			

PLEASE KEEP ALERT FOR INFORMATION ON THE FINAL PROGRAM

## ADVANCING AQUATIC VETERINARY OPPORTUNITIES

### Veterinary Medical Externship, US Navy Marine Mammal Program, Space and Naval Warfare Systems Center, San Diego, CA, USA.

Contact: Erika Putman, Coordinator of Volunteer Opportunities, Space and Naval Warfare Systems Center, Code 71510, 53560 Hull Street, San Diego, California 92152, (619) 767-4100, [nmmp\\_intern@spawar.navy.mil](mailto:nmmp_intern@spawar.navy.mil). For additional information on the Navy Marine Mammal Program go to: [www.spawar.navy.mil/sandiego/technology/mammals](http://www.spawar.navy.mil/sandiego/technology/mammals).

### Veterinary Internship/Research Opportunities in Aquatic Animal Medicine at Mystic Aquarium, Mystic, CT, USA.

1 June 2008 – 15 June 2009, with option for renewal. Application deadline 1 January 2008. Contact: Dr. Allison D. Tuttle, Staff Veterinarian, Mystic Aquarium, 55 Coogan Blvd., Mystic, CT 06355, 860-572-5955, [Atuttle@MYSTICAQUARIUM.ORG](mailto:Atuttle@MYSTICAQUARIUM.ORG). A general orientation to the Mystic Aquarium facility and programs can be obtained at <http://www.mysticaquarium.org>.

### Genomic Enablement of Aquaculture, an Interdisciplinary PhD Program to Improve Aquaculture Through Genomic Sciences: Molecular Mechanisms of Immunity to Disease, North Carolina State University, Raleigh, NC.

Research will be focused on molecular mechanisms of immunity to fish pathogens. For details on the research focus, see [www.cvm.ncsu.edu/cbs/noga\\_ed.htm](http://www.cvm.ncsu.edu/cbs/noga_ed.htm). Application review begins 15 December 2007 and remains open until filled. Starting date no later than 15 May 2008. Send applications to the Department of Zoology graduate program (<http://www.cals.ncsu.edu/zoology/graduate.html>). Address all enquiries to Edward J. Noga, Professor of Aquatic Medicine, Department of Clinical Sciences, 4700 Hillsborough Street, Raleigh, NC 27606 ([ed\\_noga@ncsu.edu](mailto:ed_noga@ncsu.edu)).

### Aquaculture and Fisheries Scholars Program, North Carolina State University, Raleigh, NC, USA.

Offers early acceptance to veterinary college to top NCSU undergraduate fisheries majors interested in fish health careers. For more information, see <http://cfr.ncsu.edu/fer/fishwild/FisheriesScholarsProgram.html>.

## SPECIAL SELECTION

### Sponsors and Supporters



## EXECUTIVE BOARD (2008)

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## COMMITTEE CHAIRS

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### Ethic & Governance

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### Aquatic Veterinary Education

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### Membership

Dr. Dušan Palić (USA)  
+1 (515) 292-8570  
[dulep@iastate.edu](mailto:dulep@iastate.edu)



# Aquatic Veterinary Medical Association

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

## 2008 MEMBERSHIP APPLICATION

**INITIAL APPLICATION**  or **RENEWAL**  (check one)

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

Dr. Dusan Palic  
2160 Vet. Med. Bldg.  
Iowa State University  
Ames, IA 50011

### Credit Card Payments

Visa;  Master Card  
Card Number \_\_\_\_\_  
Card Security Code \_\_\_\_\_

Please complete **all mandatory fields marked with an \***. Be as accurate and comprehensive as possible.

### Contact Information

\*Name (First, Middle, Last) \_\_\_\_\_  
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  cell/mobile ?  
Secondary Phone \_\_\_\_\_ Is this a business / home  cell/mobile  ?  
\*Primary e-Mail \_\_\_\_\_; Secondary e-Mail \_\_\_\_\_

### 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 2007 membership \_\_\_\_\_; \*Number of *veterinarian* members \_\_\_\_\_;  
\*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 the Annual Directory?

If so, please specify \_\_\_\_\_

### <sup>1</sup> 2008 Membership Categories & Privileges

**Full Member**—veterinarians that have graduated from veterinary Schools, Colleges or Universities recognized by any country as being a prerequisite for practicing veterinary medicine. Full Members (individual veterinarians) will be 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 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.

**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.