

# Aquatic Vet News

Vol. 2, No. 2 Spring 2008

Newsletter of the World Aquatic Veterinary Medical Association

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

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, AND TO SUPPORT THE VETERINARY PROFESSION, AQUATIC ANIMAL OWNERS, ALLIED INDUSTRIES, AND OTHER ASSOCIATED STAKEHOLDERS.

## TABLE OF CONTENTS

Editor's Note.....	2
Association's Endeavors .....	2
Association's Progress.....	2
WAVMA Logo Development .....	2
WAVMA Needs &-Issues Survey.....	2
Call for 2009 Officer Nominations.....	4
Online Aquatic Veterinarian & Disease Diagnostic Laboratories Directories.....	4
Help Create and Promote the Image of WAVMA and Aquatic Veterinary Medicine .....	4
Executive Insights .....	4
President's Update .....	5
Secretary's Update .....	5
Committee Updates .....	6
Communications Committee.....	6
Ethics and Governance Committee.....	7
Deadlines for submitting materials for the next Aquatic Vet News .....	7
Member's Letters .....	7
Student's Issues .....	7
Clinical Reports.....	8
Colleague's Connection.....	12
Research Articles at Your Fingertips .....	12
Celebrate World Veterinary Day, April 26 .....	12
Female vets at risk of miscarriage from anesthetic gases and pesticides .....	12
Aquatic Veterinary Employment, Internship & Residency Opportunities .....	12
Emerging Issues .....	13
CytoGenix Announces Agreement with Taiwan Cobia Inc. to Develop DNA Vaccines for Fish Viruses....	13
Probiotics Reduce Vibriosis in Farmed Shrimp .....	13
Big catch from gene pool could change evolution .....	13
Legislative & Regulatory Issues.....	14
Publication of Gyrodactylus salaris contingency plan for England .....	14
European Food Safety Authority - A New Player in the Aquatic Veterinary Sector. ....	14
Farmed/Wild Fish Food Safety .....	14
Amended U.S. Federal Order – Viral Hemorrhagic Septicemia (VHS) .....	16
Aquatic Veterinary Meetings & CEPD.....	17
Complimentary Registration for AVMA Convention and the World Veterinary Congress .....	18
2007/2008 Sponsors and Supporters.....	21
Contact Corner.....	21
Executive Board (2008).....	21
WAVMA Committees .....	21
2008 Membership Application .....	22

## EDITOR'S NOTE

It is a great honor and privilege for me to take over the reins as Editor of the *Aquatic Vet News* of the WAVMA. There is a large responsibility in this position, as it is the primary means of contact with many of our WAVMA members. But with the updated WAVMA.org website, and a Listserv to come, we will have many opportunities to share information with our colleagues. And that is really what this association is about - connecting with other veterinarians who are also working with aquatic animals.

When I first started treating fish in 1984, it was difficult to even find another veterinarian who also treated fish to share ideas with and compare treatments. Now, there are several thousand veterinarians who treat fish and other aquatic animals, and we have even greater need to share information as Aquatic Veterinary Medicine gains in importance. Whether treating food fish, tropical aquarium fish, ornamental pond fish, marine mammals, sea birds, aquatic turtles, or aquatic invertebrates, we all need each other to support this growing field of medicine.

And the WAVMA needs you to become active in this organization and volunteer your efforts for its support. Join a Committee!

Nick Saint-Erne, DVM, Newsletter Editor



Koi Photo by Nick Saint-Erne, DVM

## ASSOCIATION'S ENDEAVORS

### ASSOCIATION'S PROGRESS

The year 2007 was very successful for the World Aquatic Veterinary Medical Association. WAVMA is now a registered non-profit Professional Association able to serve its worldwide members. More than 70 Founding Members ratified the Bylaws that now define the Association and guide our direction. Committees have been formed to allow members to set the tone for progress. A website and the Listserv

are here to enhance communications. Major national and international entities are now sponsors and supporters, and the 2008 member-elected Officers and Directors are here to help facilitate progress.

**We need to build on this success and expand accomplishments. We invite you to renew your membership for 2008. Encourage others to become members also.**



**To renew you Membership, please complete and return the Membership Renewal Application form available at the end of this Newsletter, or on WAVMA's website ([www.WAVMA.org](http://www.WAVMA.org)) - full instructions are on the form.**

### WAVMA LOGO DEVELOPMENT

It is with great pleasure to announce that the Executive Board has been working long and hard with a professional graphics designer, Kelly Brehm-Brown, to develop a logo for the Association that embodies the spirit of our organization. Watch for its debut soon on the website and on all future WAVMA documents.

Dr. Julius Tepper  
Director-at-Large

### WAVMA NEEDS & ISSUES SURVEY

WAVMA's Executive Board deems it critical that veterinarians involved in aquatic medicine guide the priorities and emphasis for the Association, especially in these early years of formation. Results from its first survey provide interesting insights into concerns and needs of the current membership (85% of the 40

respondents listed themselves as members). All but one of the respondents listed themselves as a "veterinarian." All but 7 of the respondents who started the survey completed it, and often percentages were calculated from this reduced number. It should be noted that because of the relatively small numbers, conclusions in this summary are but a quick interpretation that should not be held as "gospel". Statistical analysis was not attempted. Future surveys will certainly both substantiate and refute some of the findings presented here.

The single strongest response (85.7% listing it as the highest importance) was for "WAVMA and WAVMA members to communicate with other veterinarians engaged in aquatic veterinary medicine." Although survey responses may be too small to accurately make inferences to the entire discipline, a preliminary and reasonable interpretation might be that there is a strong desire for those in the field to connect and interact with others, and that there is currently a significant void in the ability of the current aquatic animal health and regional veterinary organizations to meet this need.

Almost as strong (84.8% listing it as highest importance) is that WAVMA addresses veterinary issues and programs focusing on *finfish* species, versus other species groups. However, 57.6% did list all vertebrate and invertebrate species as highest importance. Half of respondents listed mollusks and crustaceans; and a quarter listed marine mammals as of highest importance for which WAVMA should focus veterinary issues and programs. *Aquatic birds* received the strongest "Least importance" score in this section of the entire survey with 18.2%. Response to "reptiles and amphibians" was also not very strong.

Again, a quick interpretation might be that veterinary issues and programs with respect to finfish should be a prime focus of WAVMA, with mollusks and crustacean taking secondary prominence. Marine mammals, reptiles and amphibians should assume a very minor concern within the organization. Aquatic birds should not be under the purview of WAVMA.

The third strongest response suggests a dearth of "*clinically relevant information*" in the field. In response to the question on the importance that WAVMA should play in developing or providing member access to high quality aquatic veterinary education and professional development programs, 72.7% listed this as highest priority. It should be noted that in this same section, 54.5% felt that the highest priority is for "*more aquatic pathophysiology*."

This most likely speaks to a feeling by many practitioners that current non-veterinary fish health seminars and conferences do not provide what

aquatic veterinarians are looking for: clinical medicine to help them be better practitioners. Added to this are strong responses on issues such as: "*improving the viability of private aquatic veterinary practice*" (48.5% listed it as highest importance).

Other notable important issues that were prominent in responses received seem to center around government agencies, regulations, and legislations regarding aquatic veterinary medicine. 66.7% (4<sup>th</sup> highest response) thought that the most important issue that WAVMA should be engaged in, and that affects the practice of aquatic veterinary medicine, is "*the inclusion of aquatic medicine in veterinary practice legislation/regulations*." 63.6% thought that it was of highest importance that WAVMA should represent, promote and "*advocate aquatic veterinary interests within disease control programs and regulations*." 42.4% thought that this should be done within or for government regulators. 42.9% listed it being of high importance that the WAVMA communicates with government agencies and regulatory bodies. 51.5% listed it being of high importance that WAVMA helped work toward ensuring sufficient quality of legal aquatic drugs, vaccines and bacterins. However, only a third believed it was of highest importance to get involved in controlling the sales and distribution of illegal aquatic drugs and the developments of prescription only products (although the latter had a total of almost 80%, if the percentage respondents for the top three "highest importance" scores (8, 9, and 10) were totaled.

It is interesting to note that only about half of the respondents listed "addressing non-veterinarians practicing veterinary medicine" as important. However, again, if the top three "high importance" score percentages are combined, this jumps to 81.8%.

So, based on this preliminary snapshot, what should WAVMA look like and endeavor to spend its time and energies on?

WAVMA should primarily be a finfish-centered organization. While not ignoring other species groups (except aquatic birds!), preliminary issues that the Association should prioritize are those involving the finfish sector. The primary focus of WAVMA should be a communication tool that facilitates interaction between those in the field across the globe. This could be accomplished through: an email and internet network of contacts; "webinars", etc.; regularly sponsored seminars and conferences; and association newsletters and publications. Material precipitating these interactions should focus on clinical veterinary medical issues (most likely instead of the current heavy emphasis on: microbiology; research, etc.). WAVMA should also be fully

engaged in: advocating a veterinary medical approach to disease control programs; addressing the legal practice of veterinary medicine; and becoming involved in the judicious use of drugs and vaccines. Towards these efforts, WAVMA should be actively seeking liaisons with appropriate government bodies and legislative authorities and/or taking active positions on relevant matters through communications, whitepapers, and other media.

Again, this is a preliminary survey and results and suggested WAVMA focus is intended to change and be malleable as the growing membership and field deems necessary. Follow-up and regular polling of the discipline is intended and will be the key in helping guide the organization into the future.

Hugh Mitchell, MSc, DVM  
2008 WAVMA President-Elect

### CALL FOR 2009 OFFICER NOMINATIONS

Nominations for 2009 President-Elect, Secretary, Treasurer and Directors-at-Large are now open. If you desire, or know of a WAVMA full member with interest in a leadership role to help shape the future directions for WAVMA and the aquatic veterinary medicine, please contact Dr. Chris Walster. Self-nomination is acceptable.

Submit a 1-page resume that also provides the nominee's vision for 2009 and beyond, by June 30, 2008. These, along with a ballot will be available on the WAVMA website for absentee votes, and provided to all members attending the Annual General Meeting on July 27, 2008 in Vancouver, British Columbia, Canada.

Nominees elected at the 2008 AGM will serve in an advisory capacity to the current Executive Board for the remainder of 2008 and take office January 1, 2009.

### ONLINE AQUATIC VETERINARIAN & DISEASE DIAGNOSTIC LABORATORIES DIRECTORIES

A free resource for all aquatic veterinarians and an opportunity for clients to find you.

Simply go to



### HELP CREATE AND PROMOTE THE IMAGE OF WAVMA AND AQUATIC VETERINARY MEDICINE

**WANTED**

**Original High Quality, High Resolution Pictures**

**Illustrating Aquatic Veterinary Practice & Species**

**For Use with WAVMA Booth & Brochures**

Powered by Poster Forge

Please e-mail any high resolution (>300 dpi) pictures that clearly illustrate what aquatic veterinarian's do, or the species or conditions we work with to: [dscarfe@ameritech.net](mailto:dscarfe@ameritech.net). All contributions will be fully credited if used. To prevent copyright violations please indicate the owner or source.

Images are only intended to be used for developing WAVMA brochures and other promotional materials to accompany a WAVMA booth. However, with the owner's permission, they may be used in a future "Image Library" accessible to WAVMA Members only.

### EXECUTIVE INSIGHTS

PLEASE FEEL FREE TO CONTACT ANY OF THE WAVMA 2008 EXECUTIVE BOARD MEMBERS OR COMMITTEE CHAIRS ON ISSUES INVOLVING THE ASSOCIATION.

PLEASE REFER TO THE "CONTACT CORNER" AT THE END OF THE NEWSLETTER FOR BOARD AND COMMITTEE MEMBER'S CONTACT INFORMATION.

## **PRESIDENT'S UPDATE**

Fish Diseases are becoming big news again with the problems of the orthomyxovirus causing Infectious Salmon Anaemia (ISA) in Chile, and the equally significant intention of Greenpeace in launching a Red List to try to stop people from eating farmed salmon and shrimp. There is very little logic in the Greenpeace argument and fish farming is clearly here to stay, but unfortunately disease management in this very young industry is not as satisfactory as it should be or could be, and this allows criticisms to develop.

It is the role of the Veterinarian to manage disease in domesticated animals and this applies just as readily to domesticated fish as to other farmed species. WAVMA is therefore focusing on many of the issues where veterinary expertise from higher animal farming is required to be properly applied. This is not just to meet the concerns of the fish farming industry or aquarists but for the fish welfare and environmental justifications that are equally important.

As President of the Association, I have tried to emphasise this all-embracing approach, which applies not just to farmed fishes but to each of the other aquatic animal areas where our remit takes us.

One of our most important roles I believe is to bring the concepts of epidemiology, risk assessment and biosecurity, so critical in all of our terrestrial animal production systems, to bear on the aquatic sector. Biosecurity is our first major emphasis and for this we are collaborating with other groups to produce what I hope will be a landmark international meeting next year to bring forward the proper Veterinary view of how aquatic biosecurity at the international, national, farm and even aquarium level, should be carried out.

One of the key efforts of the Executive Board this year is to try to spread the interest and therefore the membership of the Association beyond the U.S. – North European veterinary sector. We aim to act as supporters of veterinary involvement in aquatic animal health in all parts of the world. There are many scientists working in specific areas, such as fish virology or immunology, with whom we wish to collaborate, not compete. Our objective I believe should be to serve our specialized sector as the World Veterinary Association has succeeded in doing for the whole of Veterinary Medicine. That of course involves demonstrating our competence and offering our members and the world of aquatic health and welfare, something that only the trained veterinarian can supply.

With best wishes,  
Prof. Ron Roberts, WAVMA President

## **SECRETARY'S UPDATE**

Although most of you will be aware of what has been happening within the WAVMA since the last newsletter, below is an update of what has been achieved in the last three months, although it is accepted that some items have taken longer than that to come to fruition. Hopefully this update will be recognised as the achievements of an active Association. As ever though, nothing can be achieved without the dedication and hard work of several individuals, whom I will not embarrass by naming, and most importantly by input from our members. Everyone is encouraged to contribute to the development and success of the WAVMA however you can.

February 2008 saw the first face-to-face meeting of the new Executive Board at Aquaculture America. Following on from a presentation by 2008 President Ron Roberts of where he would like to take the WAVMA during the year, the Board discussed numerous items ranging from setting budgets, increasing membership and future meetings. Whilst at Aquaculture America the WAVMA was offered the chance to be a co-sponsor of next year's event. This entails providing at least one day of lectures on aquatic veterinary medicine, but in return the WAVMA gets a free booth at the exhibition hall and the chance to promote itself. Next year's Aquaculture America will be held in Seattle, Washington and anyone interested in presenting can drop Chris Walster a line.

Continuing on with further meetings the WAVMA has now booked a room to hold an evening meeting during the AVMA Convention in New Orleans in July this year. The evening is intended to be split between presentations and an informal question and answer session. It is scheduled to occur on the Monday evening, July 21 from 6.30pm to 9.30pm. The WAVMA still has to get confirmation that it will have booth space at the exhibition, but for those of you attending the AVMA Convention please seek WAVMA out and if you wish to help please let a member of the Board know.

After the AVMA Convention is the World Veterinary Congress in Vancouver, BC, Canada and the WAVMA will hold its second Annual General Meeting there on Sunday, July 27. The morning (10.00 am to 12.00 pm) will consist of various committee and Executive Board meetings to which all members are entitled to attend. The afternoon (1.30 pm to 5.00 pm) will see the actual AGM along with some keynote speeches. Remember that elections will take place then for the 2009 Executive Board so start considering if you wish to stand. On Tuesday evening, July 29, there will be a WAVMA reception from 7.00 pm till 9.00 pm and on Thursday, July 31

there will be a WAVMA session starting 11.00 am till 5.00 pm on contentious issues in aquatic veterinary medicine. Depending on sponsorship available there may be a nominal charge to cover refreshments provided during the WAVMA session. All members are encouraged to register for and attend the WAVMA functions and the aquatics presentations during the WVC. It promises to be an excellent five days of practitioner orientated Continuing Education.

Finally on meetings, initial discussions have started on an international aquatic animal biosecurity conference to be held in July 2009 at the University of Prince Edward Island, Canada. Several international organisations have expressed interest in involvement along with the American Veterinary Medical Association and the Center for Food Security and Public Health (CFSPH). Much is tentative at this stage, but the conference will provide several days of didactic learning on risk analysis, Hazard Analysis and Critical Control Points (HACCP), farm health plans and biosecurity along with a couple of days practical experience putting into practice what has previously been learnt. This is a big project for the WAVMA but has the prospect of enhancing our credentials as an international organisation, providing state of the art education, and for participants being informative and good fun. We hope to see you there.

More mundane things recently accomplished by the Association included drafting, then ratification by voting of the members of the latest Bylaws so as to comply with legislation allowing WAVMA to be a 501 (6) C organisation. This means that your dues are tax deductible (perhaps you might wish to contribute this savings back to WAVMA?) and most importantly that the WAVMA can lobby politically on behalf of its members. We are also updating the WAVMA.org website, although the Communications Committee still has to decide on the additional pages needed (anyone with an interest in web sites should get in touch). There is currently an online survey of members' needs and wishes, the results of which will be discussed elsewhere in this edition of AVN. We should also finally have a suitable design for a logo by the time you receive this.

Of importance to show WAVMA's credentials as an international organization, the Eastern Aquatic Veterinary Association (EAVA, USA) recently voted to become an Allied Organisation, and the Fish Veterinary Society (FVS, UK) voted to continue membership as an Allied Organisation. If anyone knows of or is aware of groups or individuals who would benefit from joining the WAVMA then please encourage them to do so. The WAVMA submitted evidence to DEFRA on its consultation on implementation of EU 2006/88, which clearly has an impact on countries around the world and the WAVMA was also pleased to be able to support the

position of the FVS on this important matter.

All of the above required a lot of work from those involved even just in concept, and the Executive Board offers its thanks to them. Much of this was simple groundwork to ensure the WAVMA can fulfill its mission statement and provide services to its members. We are now in a position to take things forward but require you - the membership - to tell us as to where we need to concentrate resources. An objective for this year that was clearly identified by the Executive Board was to increase membership particularly from those countries where members are thin on the ground. Unless we can demonstrate worldwide membership and the ability to support veterinarians in the countries that due to circumstances are less fortunate than ourselves, then the WAVMA will not be able to develop into the kind of Association it aspires to be. All of us need to encourage those we know to join or send contact details to the appropriate person.

Respectfully submitted,  
Dr. Christopher I. Walster  
WAVMA Secretary

---

## COMMITTEE UPDATES

### COMMUNICATIONS COMMITTEE

The Communications Committee meets monthly, usually the first Saturday of the month, by teleconference. The Committee designated 4 communication tools that are under our auspices: The WAVMA Website, the Listserv, the AVN Newsletter, and a Relational Database. Each of these items will be able to provide information to our members in a timely manner about what is happening in the world of aquatic veterinary medicine.

The Website is active now and I encourage all members to regularly check its pages for new information, at WAVMA.org. The Listserv will allow members to communicate with each other on a daily basis, via emails, and can be separated into topics to easily get the information each member needs. The *Aquatic Vet News* will be provided on a quarterly basis, and the Database will be a listing of member veterinarians, allied industry members, and other associated contact information.

The Communications Committee will also serve as a link between the WAVMA and outside agencies and organizations, such as veterinary schools and organizations, public zoos & aquaria, businesses, governments, research groups, the general public, other publications and the press (news services).

Each of these procedures requires time and talent,



and I would ask every member to volunteer some of their talent to help with one or more of the Association's projects. If any WAVMA member is interested in joining the Communications Committee, and has experience with Website design, newsletters, listserv, press releases, or other areas

pertaining to communications, please contact me by email: [nsainterne@gmail.com](mailto:nsainterne@gmail.com).

Nick Saint-Erne, DVM  
Communications Committee Chair

## **ETHICS AND GOVERNANCE COMMITTEE**

The WAVMA Ethics and Governance committee, under the chair of Dr. Peter Merrill, meets monthly by conference call; and has already advanced several recommendations that the Executive Board has subsequently approved. These include new provisions for amending the Bylaws; the establishment of guidelines for committee and other WAVMA entity periodic reports; the use of WAVMA net earnings; and establishment of an electronic voting policy for WAVMA members.

In addition, the EGC is planning on reviewing all existing committee charters, and advising the Executive Board regarding the formation and functionality of additional committees needed to effect WAVMA business. The committee (in conjunction with the Office of the President's Vision Statement for WAVMA's first 5 years), will also advise the Executive Board on the formulation of an asset allocation policy.

Future policy regarding membership discounts that could apply for individual members of other groups which join WAVMA as Affiliated Veterinary Organizations is another area with which the EGC will assist the Executive Board. And finally, a request from the WAVMA membership is currently under study to help determine WAVMA policy regarding the actual or implied practice of aquatic veterinary medicine by non-veterinarians in various countries around the world.

Peter L. Merrill, DVM  
Ethics & Governance Committee Chair

## **DEADLINES FOR SUBMITTING MATERIALS FOR THE NEXT AQUATIC VET NEWS:**

- AVN 2(3) – June 15, 2008
- AVN 2(4) – August 15, 2008
- AVN 2(1) – December 31, 2008

## **MEMBER'S LETTERS**

(We invite members and other readers to send letters to the editor)

Dear Sir,

I would like to thank those who took the time and trouble to provide content and comment on the previous issues of the AVN, which were well received. The Newsletter is not only one of the benefits of membership but also a tangible example of what WAVMA stands for in my opinion – excellence in aquatic veterinary medicine.

One way to achieve excellence is to inform and discuss new ideas amongst colleagues and peers and the AVN provides a wonderful forum in which to do this. Aquatic veterinary medicine is not only international in terms of the clients and patients we serve, but also in the varied problems that we as individual practitioners face on a daily basis.

The AVN is not intended to be a formal, peer reviewed journal nor is it meant to showcase research. Although it can include such items, it comes in to its own if WAVMA members use it to voice concerns, opinions, illustrate new treatments, describe unusual or new cases, or simply to ask the advice of colleagues.

Somewhere within the AVN columns is an appropriate place for any topic regarding aquatic veterinary medicine and I would encourage all WAVMA members to contribute to the success of the AVN.

Chris Walster, UK.

## **STUDENT'S ISSUES**

(We invite student members to contribute issues or information to this column)

Important news for students wanting to join the WAVMA – all students currently enrolled in recognized veterinary academic programs (including post-graduate programs, internships and residencies) can join the WAVMA for 50% off the normal dues. This could be the best \$50 you ever spent. Further information is available on the WAVMA.org website and on the 2008 Membership Application at the end of this Newsletter.

## CLINICAL REPORTS

### Tests for the presence of koi herpesvirus (KHV) in common carp (*Cyprinus carpio carpio*) and koi carp (*Cyprinus carpio koi*) in the Czech Republic.

Pokorova, D., V. Piakova, A. Cizek, S. Reschova, J. Hulova, M. Vicenova, T. Vesely (2007). *Veterinarni Medicina*, 52 (12): 562–568. (downloadable at [www.vri.cz/docs/vetmed/52-12-562.pdf](http://www.vri.cz/docs/vetmed/52-12-562.pdf))

**Abstract**—An outbreak of koi herpesvirus (KHV) infection associated with high mortality of common and koi carp was recorded in the USA and Israel in 1998. At present, this disease is viewed as one of the most significant factors that can adversely affect common and koi carp breeds. The disease has spread worldwide including European countries neighbouring with the Czech Republic (CR), i.e., Germany, Poland, and Austria. To monitor the situation in the CR, samples were collected from a total of 138 common and koi carps in seven and eight locations in CR respectively, and were examined between 2005 and 2006. Locations owned by the major producers of common and koi carp were selected with respect of potential occurrence of the KHV virus. No records of increased mortality and morbidity were noticed there. Preferentially carps with non-specific symptoms of disease were sampled, often with isolated skin erosions. To obtain detailed picture about health condition of examined fish the bacteriological and haematological examinations were accomplished. The next part of the examined samples were carp and koi carp for export from professional breeders, imported koi carp and fish from breeds with increased mortality (45 and 21 fish in 2005 and 2006, respectively) The only virological testing was done in this case. The culture and PCR method, according to Gilad et al. (2002) showed negative results for KHV in all years. Retrospective investigation by PCR method according to Bercovier et al. (2005) showed positivity in five locations in 2005. In 2006, KHV virus was not detected in any of the selected locations. The aim of our study was to find out the presence/absence of KHV in selected locations and potential correlation of virological, bacteriological and haematological findings. The results of first testing for presence of koi herpesvirus indicates the necessity of regular KHV monitoring in the Czech Republic in the next period.

**Outbreaks of phaeohyphomycosis in the chinook salmon (*Oncorhynchus tshawytscha*) caused by *Phoma herbarum*.** Faisal M, Elsayed E, Fitzgerald SD, Silva V, Mendoza L. (2007). *Mycopathologia*, 163(1):41-8.

**Abstract**—*Phoma herbarum* has been associated with two outbreaks of systemic mycosis in hatchery-

reared chinook salmon (*Oncorhynchus tshawytscha*) fingerlings. Affected fish exhibited abnormal swimming behavior, exophthalmia, multiple rounded areas of muscle softening, protruded hemorrhagic vents, and abdominal swelling. In all affected fish, swimbladders were filled with whitish creamy viscous fungal mass, surrounded by dark red areas in swimbladder walls, kidneys, and musculature. Clinical and histopathological examinations suggest that the infection may have started primarily in the swimbladder and then spread to the kidneys, gastrointestinal tract, and surrounding musculature. Consistent microscopic findings included broad septate branched fungal hyaline hyphae, 5-12 micrometers in diameter within the swimbladder, stomach, and often within and adjacent to blood vessels. Profuse growths of woolly brown fungal colonies were obtained from swimbladders and kidneys on Sabouraud medium. On corn meal agar the formation of pycnidia, characteristic of *Phoma* spp., was detected within 10 days of incubation. Morphological and molecular analyses identified this fungus as *Phoma herbarum*. This report underscores systemic fungal infections as a threat to raceway-raised salmon.

### Alphavirus infections in salmonids – a review.

McLoughlin, MF & Graham, DA (2007). *Journal of Fish Diseases*, 30(9):511–531.

**Abstract**—The first alphavirus to be isolated from fish was recorded in 1995 with the isolation of salmon pancreas disease virus from Atlantic salmon, *Salmo salar* L., in Ireland. Subsequently, the closely related sleeping disease virus was isolated from rainbow trout, *Oncorhynchus mykiss* (Walbaum), in France. More recently Norwegian salmonid alphavirus (SAV) has been isolated from marine phase production of Atlantic salmon and rainbow trout in Norway. These three viruses are closely related and are now considered to represent three subtypes of SAV, a new member of the genus *Alphavirus* within the family *Togaviridae*. SAVs are recognized as serious pathogens of farmed Atlantic salmon and rainbow trout in Europe. This paper aims to draw together both historical and current knowledge of the diseases caused by SAVs, the viruses, their diagnosis and control, and to discuss the differential diagnosis of similar pathologies seen in cardiomyopathy syndrome and heart and skeletal muscle inflammation of Atlantic salmon.

### Global trade in ornamental fish from an Australian perspective: The case for revised import risk analysis and management strategies.

Whittington RJ & Chong R. (2007). *Preventive Veterinary Medicine*, 81(1-3):92-116.

**Abstract**—Over 1 billion ornamental fish comprising



more than 4000 freshwater and 1400 marine species are traded internationally each year, with 8–10 million imported into Australia alone. Compared to other commodities, the pathogens and disease translocation risks associated with this pattern of trade have been poorly documented. The aim of this study was to conduct an appraisal of the effectiveness of risk analysis and quarantine controls as they are applied according to the Sanitary and Phytosanitary (SPS) agreement in Australia. Ornamental fish originate from about 100 countries and hazards are mostly unknown; since 2000 there have been 16-fold fewer scientific publications on ornamental fish disease compared to farmed fish disease, and 470 fewer compared to disease in terrestrial species (cattle). The import quarantine policies of a range of countries were reviewed and classified as stringent or non-stringent based on the levels of pre-border and border controls. Australia has a stringent policy which includes pre-border health certification and a mandatory quarantine period at border of 1–3 weeks in registered quarantine premises supervised by government quarantine staff. Despite these measures there have been many disease incursions as well as establishment of significant exotic viral, bacterial, fungal, protozoal and metazoan pathogens from ornamental fish in farmed native Australian fish and free-living introduced species. Recent examples include *Megalocytivirus* and *Aeromonas salmonicida* atypical strain. In 2006, there were 22 species of alien ornamental fish with established breeding populations in waterways in Australia and freshwater plants and molluscs have also been introduced, proving a direct transmission pathway for establishment of pathogens in native fish species. Australia's stringent quarantine policies for imported ornamental fish are based on import risk analysis under the SPS agreement but have not provided an acceptable level of protection (ALOP) consistent with government objectives to prevent introduction of pests and diseases, promote development of future aquaculture industries or maintain biodiversity. It is concluded that the risk analysis process described by the Office International des Epizooties under the SPS agreement cannot be used in a meaningful way for current patterns of ornamental fish trade. Transboundary disease incursions will continue and exotic pathogens will become established in new regions as a result of the ornamental fish trade, and this will be an international phenomenon. Ornamental fish represent a special case in live animal trade where OIE guidelines for risk analysis need to be revised. Alternatively, for countries such as Australia with implied very high ALOP, the number of species traded and the number of sources permitted need to be dramatically reduced to facilitate hazard identification, risk assessment and import quarantine

controls.

**Characterization of swim bladder non-inflation (SBN) in angelfish, *Pterophyllum scalare* (Schultz), and the effect of exposure to methylene blue.** S T Perlberg, A Diamant, R Ofir and D Zilberg. *J. Fish Diseases*, 31 (3): 215–228.

**Abstract**—Failure to inflate the swim bladder is regarded a major obstacle in the rearing of many fish species. We present a study of swim bladder non-inflation (SBN) in angelfish, *Pterophyllum scalare*. A normal developing primordial swim bladder was first discernable at the end of the first day post-hatch (p.h.) as a cluster of epithelial cells with a central lumen, surrounded by presumably mesenchymal cells. Initial inflation occurred on the fourth day p.h. Prior to inflation the swim bladder epithelium consisted of an outer squamous and inner columnar layer. Cells of the inner layer were filled at their basal region with an amorphous material, which disappeared upon inflation. A pneumatic duct was absent, and larvae presented no need to reach the water surface for inflation, suggesting that angelfish are pure physoclists. A model for the role of the amorphous material in normal initial inflation is proposed. Abnormal swim bladders were apparent from the fourth day p.h., and methylene blue (MB) at a concentration of 5 ppm significantly increased the prevalence of SBN. Histologically, abnormal swim bladders in larvae hatched in 5 ppm MB could not be distinguished from those in fish raised under routine conditions (0.5 ppm MB). We suggest that MB may have a teratogenic effect in angelfish.

**Estimating diagnostic test accuracy for infectious salmon anaemia virus in Maine, USA.** L Gustafson, S Ellis, D Bouchard, T Robinson, F Marengi, J Warg and C Giray. *J. Fish Diseases*, 31 (2): 117-125.

**Abstract**—Infectious salmon anaemia virus (ISAV) is a pathogen of consequence to farmed Atlantic salmon, *Salmo salar* L. ISA control centres on active surveillance for early detection by reverse transcription polymerase chain reaction (RT-PCR), indirect fluorescent antibody assay (IFAT) and virus isolation. Because diagnostic test performance varies among populations and laboratories, the Office International des Epizooties (OIE) recommends an evaluation of test accuracy in each region of use. This is complicated in Maine, USA by the co-existence of ISAV genotypes homologous to North American (NA) and European (EU) isolates. While NA ISAV genotypes isolated in Maine are characterized by high morbidity and mortality, the single EU genotype in Maine has not yet been linked to disease or isolated by cell culture. Consequently, distinguishing among genotypes is critical to infection response. Accuracy in NA genotype detection was

estimated from ISA surveillance data using latent class models. Results suggested that RT-PCR is an excellent screening test for NA ISAV genotypes in Maine, although probably with reduced specificity in the presence of EU genotypes. IFAT, in contrast, was a poor screening test for detection of ISAV in Maine, although it may be useful in confirmation of NA genotypes during disease outbreaks.

**A Global Assessment of Salmon Aquaculture Impacts on Wild Salmonids.** Ford JS, Myers† RA (2008) *PLoS Biol.*, 6(2): e33-7pg. The full article is downloadable at <http://biology.plosjournals.org>.

**Abstract**—Since the late 1980s, wild salmon catch and abundance have declined dramatically in the North Atlantic and in much of the northeastern Pacific south of Alaska. In these areas, there has been a concomitant increase in the production of farmed salmon. Previous studies have shown negative impacts on wild salmonids, but these results have been difficult to translate into predictions of change in wild population survival and abundance. We compared marine survival of salmonids in areas with salmon farming to adjacent areas without farms in Scotland, Ireland, Atlantic Canada, and Pacific Canada to estimate changes in marine survival concurrent with the growth of salmon aquaculture. Through a meta-analysis of existing data, we show a reduction in survival or abundance of Atlantic salmon; sea trout; and pink, chum, and coho salmon in association with increased production of farmed salmon. In many cases, these reductions in survival or abundance are greater than 50%. Meta-analytic estimates of the mean effect are significant and negative, suggesting that salmon farming has reduced survival of wild salmon and trout in many populations and countries.

**Surveillance of viral fish diseases in the Czech Republic over the period January 1999 – December 2006.** S. Reschova, D. Pokorova, J. Hulova, P. Kulich, T. Vesely (2008). *Veterinari Medicina*, 53 (2): 86–92. The full article is downloadable at <http://www.vri.cz/docs/vetmed/53-2-86.pdf>.

**Abstract**—The present study reports the results of virological survey in fish with an emphasis on the diseases included in the Czech National Legislation. Monitoring of fish both without symptoms and with a manifested disease was performed within this virological surveillance. Between January 1999 and December 2006, viral haemorrhagic septicaemia virus (VHSV), infectious haematopoietic necrosis virus (IHNV) and infectious pancreatic necrosis virus (IPNV) were surveyed by the National Reference Laboratory for viral diseases on fish. Among of 3789 sample pools processed, VHSV was detected in

seven cases (6× in *Oncorhynchus mykiss*, 1× in *Salmo trutta m. fario*), IHNV was detected in seven cases (6× in *Oncorhynchus mykiss*, and 1× in *Esox lucius*) and IPNV was diagnosed once in *Oncorhynchus mykiss*. In four cases, the viral agents were detected in ovarian fluid from broodfish without any clinical symptoms. In the remaining cases the virus was isolated from tissue homogenates. Our results show that ovarian fluid is valuable material for the detection of viral agents during the monitoring of fish diseases.

**Pathological Findings in a Rare Mass Stranding of Melon-Headed Whales (*Peponocephala electra*) in Florida.** Gregory D. Bossart, Larry Hansen, Juli D. Goldstein, David Kilpatrick, Sarah Bechdel, Elisabeth Howells, Kenny Kroell, Malcolm de Siewes, Megan K. Stolen, Wendy Noke Durden, John S. Reif, R. H. Defran, and Stephen D. McCulloch. *Aquatic Mammals* 2007, 33(2), 235-240

**Abstract**—Pathological findings associated with the mass stranding of five melon-headed whales (*Peponocephala electra*) along the Atlantic coast of Florida are reported. Four of the five whales were freshly dead, and the fifth was moderately decomposed. Body weights ranged from 160 to 180 kg, and all whales had mild to moderate weight loss evidenced by postnuchal depression and pronounced scapulae and peduncular vertebrae. All whales had from 10 to 21 ovoid dermal scars consistent with healed cookie-cutter shark (*Isistius brasiliensis*) wounds. Gastric compartments of all whales contained from 6 to 20 squid beaks with no other solid food items present. The peritoneum of all whales contained many parasitic cestode cysts consistent with *Monorygma* spp. In all cases, the alimentary tract had gross and microscopic lesions. Colons had an unusual microscopic lesion diagnosed as particularly florid examples of the collagenous stage of microscopic colitis known as collagenous colitis as reported in humans. The lesion was characterized by a diffuse, irregular, moderate thickening of the colonic wall due to deposition of subepithelial collagen between the muscularis mucosae and basement membrane of the surface epithelium in the lamina propria. The surface epithelium and collagen layer had mild multifocal infiltrates of neutrophils and eosinophils and mildly increased numbers of lymphocytes and plasma cells. Additionally, mild to moderate myocardial degeneration was a consistent finding in all cases. Less consistent lesions included erosive esophagitis, ulcerative gastritis, granulomatous gastritis, ulcerative dermatitis, and Nasitrema-associated suppurative sinusitis. The cause of the mass stranding was not determined; however, all whales exhibited pathological changes consistent with pre-existing

chronic disease with inanition that developed prior to the stranding event.

**Trace element concentrations in skin of free-ranging bottlenose dolphins (*Tursiops truncatus*) from the southeast Atlantic coast.** Hui-Chen W. Stavros, Gregory D. Bossart, Thomas C. Hulsey, Patricia A. Fair. *Science of the Total Environment* 388 (2007) 300–315.

**Abstract**—Concentrations of trace elements (Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Li, Mn, Ni, Pb, Sb, Se, Sn, Tl, U, V, Zn) and total mercury (THg) were determined in skin samples collected from free-ranging bottlenose dolphin (*Tursiops truncatus*) populations. Dolphins were captured in the estuarine waters of Charleston (CHS), South Carolina (n=74) and the Indian River Lagoon (IRL), Florida (n=75) during 2003, 2004 and 2005. A subset of the skin tissue samples were used to determine methylmercury (MeHg) levels in CHS (n=17) and IRL (n=8) bottlenose dolphins. Distributions of trace element concentrations by age (adult vs. juvenile), gender (male vs. female) and study area (CHS vs. IRL) were examined. In general, higher elemental skin concentrations were found in CHS adult males than those of IRL adult males, except for THg and MeHg. For CHS dolphins, adult females showed significantly higher THg levels than juvenile females while higher Mn levels were found in juvenile females. For IRL dolphins, adult males showed significantly higher As concentrations than that in juvenile males and females while higher Co and V levels were found in juvenile males than adult males. Of all elements measured in this study, significantly higher levels of Fe, Se and Zn concentrations in skin tissue of both dolphin populations were similar to other studies reported previously. Percentage of MeHg/THg in skin tissue of CHS and IRL dolphin was about 72% and 73%, respectively. Dietary levels of trace elements may play an important role in contributing to concentration differences for As, Co, Mn, Sb, Se, THg and Tl between CHS and IRL dolphins. Total Hg concentrations were significantly correlated with the age of CHS dolphins, while an inverse relationship was detected for Cu, Mn, Pb, U and Zn. The only significant correlation found between trace element concentration and IRL dolphins' age was Mn. Geographic differences in several trace element concentrations (As, Co, Mn, Sb, Se, THg and Tl) in skin tissue may be potentially useful to discriminate between dolphin populations and is a possibility that warrants further investigation.

**Polychlorinated Biphenyls and Hydroxylated Polychlorinated Biphenyls in Plasma of Bottlenose Dolphins (*Tursiops truncatus*) from the Western Atlantic and the Gulf of Mexico.** Magali Houde, Grazina Pacepavicius, Randall S.

Wells. Patricia A. Fair, Robert J. Letcher, Mehran Alaei, Gregory D. Bossart, Aleta A. Hohn, Jay Sweeney, Keith R. Solomon, and Derek C. G. Muir. *Environ. Sci. Technol.* 2006, 40, 5860–5866.

**Abstract**—Polychlorinated biphenyls (PCBs) and hydroxylated metabolic products (OH-PCBs) were measured in plasma collected from live-captured and released bottlenose dolphin (*Tursiops truncatus*) from five different locations in the Western Atlantic and the Gulf of Mexico in 2003 and 2004. In 2004, the sum (∑) of concentration of PCBs in plasma of dolphins sampled off Charleston, SC [geometric mean: 223 ng/g of wet weight (w.w.)] was significantly higher ( $p < 0.05$ ) than concentrations detected in animals from the Indian River Lagoon, FL (∑PCBs: 122 ng/g w.w.) and the Sarasota Bay, FL (∑PCBs: 111 ng/g w.w.). The PCB homolog profiles were similar among locations. Concentrations of OH-PCBs were significantly higher ( $p < 0.05$ ) in plasma of dolphins from Charleston, SC (∑OH-PCBs for 2003: 126 ng/g w.w.; 2004: 138 ng/g w.w.) than animals from Florida (∑OH-PCBs ranged from 6 to 47 ng/g w.w.) and Bermuda samples did not differ from animals captured in Delaware Bay, NJ (57 ng/g w.w.). The ∑OH-PCBs constituted 2–68% of the total PCB concentrations in plasma. Dichloro- to nonachloro-OH-PCBs were quantified using high-resolution gas chromatography mass spectrometry, but only around 20% of OH-PCBs could be identified by comparison to authentic standards. Results from this study show that OH-PCBs are important environmental contaminants in dolphins and suggest that PCBs, decades after their ban, may still constitute a threat to wildlife.



Humpback whale breach: photo by Whit Welles (Wikipedia)



## COLLEAGUE'S CONNECTION

### RESEARCH ARTICLES AT YOUR FINGERTIPS

Janis H. Audin, MS, DVM, the AVMA Editor-in-Chief, has just announced a new service by the American Veterinary Medical Association. The AVMA will allow open access on its website to a variety of research articles in the new program called the *AVMA Collections*. This is a series of single-topic article compilations from the *Journal of the American Veterinary Medical Association* and the *American Journal of Veterinary Research*. It provides information on timely topics, all wrapped up in a convenient package.

Dr. Audin writes, "AVMA Collections is a new monograph series designed to spotlight those articles from the AVMA scientific journals that have the greatest practical application for readers on topics central to our profession. Far more than a grouping of articles derived from a keyword search, *Collections* articles are carefully selected by our journal editors to give you the most helpful picture of current knowledge in a given subject area. The table of contents serves as a snapshot, providing you with a topic summary and highlights of each article, with the next level — the articles from which the highlights are derived — readily available for deeper analysis."

A recent search on the *AVMA Collections* site found 220 articles concerning aquaculture, 246 items when searching for Fish Medicine, 352 items about Aquatic Animals, and even 15 articles when searching for "Koi"! This site will be a great help in finding current information more easily. Check it out at : <http://www.avma.org/avmacollections/default.asp>

### CELEBRATE WORLD VETERINARY DAY, APRIL 26

A day of note, not only because the world celebrates the role that veterinarians have and will play in caring for the health and welfare of animals, and how the profession has advanced public health, food safety and other fields, but because others before us have specifically noted that vets also care for aquatic animals of all types. All one has to do is look carefully at the World Veterinary Day logo developed some years ago.



### FEMALE VETS AT RISK OF MISCARRIAGE FROM ANESTHETIC GASES AND PESTICIDES

Source: Eurekalert! Medicine April 15, 2008

Female vets run twice the risk of miscarriage as a result of exposure to anaesthetic gases and pesticides, suggests a study published ahead of print in *Occupational and Environmental Medicine*. The findings prompt the authors to call for young female vets to be more clearly advised of the risks they run, should they want to become pregnant. The study is based on a survey of women taking part in the Health Risks of Australian Veterinarians Project (HRAV). This surveyed all those graduating from Australian veterinary schools between 1960 and 2000. Of the 5700 graduates contacted, some 2800 responded, of whom 1200 were women. Between them, these women reported a total of 1355 pregnancies, 940 of which occurred while working in clinical practice, and so were eligible for inclusion in the study. Women carrying out surgery and exposed to anaesthetic gases that were not filtered out of the atmosphere, for an hour or more a week, were almost 2.5 times more likely to miscarry. Female vets who used pesticides during the course of their work were also twice as likely to miscarry. And those who performed more than five x rays a week were around 80% more likely to miscarry than those performing fewer procedures. When the researchers restricted their analyses to those women graduating more recently—between 1980 and 2000—the results were similar. The authors warn that female vets of childbearing age "should be fully informed of the possible reproductive effects of ionising radiation, unscavenged anaesthetic gases, and exposure to pesticides." Women should take protective measures when they are planning to conceive and during pregnancy, they warn. But all staff working in these areas should be aware of the risks and protect themselves accordingly.

For more information, see:

<http://www.worldvet.org/modules.php?op=modload&name=News&file=article&sid=4162>

### AQUATIC VETERINARY EMPLOYMENT, INTERNSHIP & RESIDENCY 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)

## EMERGING ISSUES

### **CYTOGENIX ANNOUNCES AGREEMENT WITH TAIWAN COBIA INC. TO DEVELOP DNA VACCINES FOR FISH VIRUSES**

March 05, 2008. HOUSTON--(BUSINESS WIRE)--CytoGenix, Inc. (CYGX.OB) announced today it has completed an agreement with Taiwan Cobia Inc. (TCI) to develop DNA vaccines against fish viruses. Under this Agreement, CytoGenix will develop DNA vaccines against selected viruses and TCI will vaccinate the fish and test immunological responses. Mr. Cory Huang, President and Chief Executive Officer of TCI, comments, "Fish is Man's most important single source of high-quality protein and provides ~16% of the animal protein consumed by the world's population (United Nations Food and Agriculture Organization, 1997)." According to the FAO, aquaculture is one of the fastest growing food producing sectors of the world and it continues to grow more rapidly than all other animal food-producing sectors with Asia and the Pacific region contributing over 91.5% of the total global production and 82% of the value. However, aquaculture faces many challenges especially when it comes to health management of fish stocks. CytoGenix' synDNA™ technology has the capability to provide the large quantities of affordable DNA vaccines necessary to address the need for simpler and more effective aquaculture vaccination regimens than currently available.

See the source (<http://tinyurl.com/yw2fne>) for full information.

### **PROBIOTICS REDUCE VIBRIOSIS IN FARMED SHRIMP**

March 18, 2008. FRANCE - An industry linked research study by scientists at the French Research Institute for Exploitation of the Sea has revealed positive benefits of using probiotics in farmed shrimp production. The joint research program conducted by Mathieu Castex in Nouméa, New Caledonia (South Pacific), has demonstrated that the administration of Bactocell® (*Pediococcus acidilactici* MA 18/5 M) in the feed of marine shrimps (*Litopenaeus stylirostris*) in farms usually affected by summer syndrome, could reduce vibriosis-associated mortality by up to 15 per cent. As a result, final shrimp yield of the farm is increased. The actions of Bactocell in the shrimp were also evaluated and shown to be very positive. The probiotic improved digestive functions and the gut-associated bacteria populations of the shrimps.

See the source (<http://tinyurl.com/28myvf>) for full details.

### **BIG CATCH FROM GENE POOL COULD CHANGE EVOLUTION**

March 2, 2008. New Zealand Herald—Rules that allow only the catching of larger fish may, according to this story encourage their replacement with slower-growing, more timid varieties. That, at least, is the concern of researchers who studied test populations in two artificial lakes and report their findings in this week's edition of Proceedings of the National Academy of Sciences in the United States.

Peter Biro, of the department of environmental science at the University of Technology in Sydney, was cited as saying it was the fast-growing, more aggressive fish that tended to get caught, removing them from the breeding pool. That left reproduction up to slower-growing fish who were more timid.

"This will cause evolution to slower growth rates and slow the rate of recovery for fished populations, and could explain why fisheries tend not to rebound in the manner we expect after we reduce harvest or close a fishery," he was quoted as saying. "What surprised me was how fast it occurred."

Dr Biro and his colleague, John Post, stocked two lakes in western Canada with different types of rainbow trout - one type was known to be aggressive in seeking food and to grow rapidly, while the other grew more slowly and tended to take fewer risks in foraging. They set gillnets in the ponds over five days, moving them each day, and caught 50 per cent of the stocked fast-growing fish but just 30 per cent of the more cautious ones.

"Fish that are highly active and bold tend to bump into these nets more often and are less likely to avoid them," he explained. And increased activity is necessary to get enough food for rapid growth.

John Waldman, an aquatic biologist at Queens College in New York, called the report important. "Harvest of fishes is probably the most profound impact mankind is having on the sea, yet we rarely succeed in even the basics of achieving long-term sustainability of important commercial species," said Professor Waldman, who was not part of the research team. The report showed that "differences in boldness", which are positively correlated with grow rate, "render bold individuals more vulnerable to harvest, thereby adding an important and, until now, unconsidered direct effect to the known indirect effect of fishing", Professor Waldman said.

"The implication for managers is that the continued reproduction of a meaningful portion of fast-growing individuals is likely even more important than previously recognised," he said.

See the source <http://tinyurl.com/3l7dxs> for full

## LEGISLATIVE & REGULATORY ISSUES

### **PUBLICATION OF *GYRODACTYLUS SALARIS* CONTINGENCY PLAN FOR ENGLAND**

London. 14 April 2008 . Defra today published its contingency plan for dealing with an outbreak of the salmon parasite *Gyrodactylus salaris* (Gs). The plan forms part of a comprehensive package of plans covering all of the UK, which is intended to protect the country's valuable salmon stocks from this potentially devastating disease. In the event of identification of Gs in either farmed or wild freshwater fish stocks, the objective will be to contain and, if possible, eradicate the parasite. Gs has never been found in the UK.

The plan is available to view online at:  
[www.defra.gov.uk/fish/fishfarm/diseases.htm](http://www.defra.gov.uk/fish/fishfarm/diseases.htm).

### **EUROPEAN FOOD SAFETY AUTHORITY - A NEW PLAYER IN THE AQUATIC VETERINARY SECTOR.**

The European Food Safety Authority, or EFSA is a statutory body of the European Union, tasked with providing Risk Analysis based scientific reports and Opinions on all aspects of the food chain "... from farm gate to plate" or in the case of fish "...from boat to throat."

The main engines generating its reports, which carry great weight in the formulation of both EU policy and laws, are the Expert Panels. In the case of animal production, which includes fish and shellfish, this is the Animal Health and Welfare Panel. Unusually, this Panel also deals with animals which are used by man even if not consumed, such as pet animals and fish and wild mammals such as seals. The secretariat supporting the Expert Panels is relatively large and highly qualified. In the case of the Animal Health and Welfare Panel the staff members are all veterinary qualified, including two who also have PhDs in aquatic veterinary studies.

The whole concept of EFSA is that its working will be entirely transparent and all of its documents are openly available on the web: [www.efsa.europa.eu](http://www.efsa.europa.eu) . Their Opinions are very weighty documents and all include a very detailed review of the subject based on peer reviewed publications and expert opinions, coupled with risk analysis and detailed recommendations. They are generally commissioned by the European Parliament or one of the EU Directorates, but in order to emphasise their independence, EFSA is located not in Brussels, at the heart of the EU Political scene, but in Parma in Italy.

Recently EFSA produced four opinions of great significance to aquatic veterinarians. Although framed

as responses to specific mandates from either the Parliament or the Directorate for Human and Animal Health, they are available to all on the web and can be used as authoritative unbiased and independent statements of fact which will be of value to all in our field.

The first of EFSA's aquatic related reports was a response to the claims of American scientists, in the American scientific journal 'Science' and other journals, that eating farmed salmon was dangerous. It was a very significant report which weighed up all of the evidence for the benefits and risks of consuming farmed and wild fishes. A copy of the summary, which provides useful quotes for all aquatic veterinarians, is appended and provides authoritative evidence that the claims were incorrect.

The others to date have been on risks associated with movement of live aquatic molluscs, finfish and crustaceans. This is an area where the veterinary epidemiological expertise of the international working group who produced the report for EFSA was somewhat challenged by the very varying definitions of matters such as 'disease', 'vector' and 'infection' that are used interchangeably in aquatic descriptions from OIE and other bodies. One outcome will be much more specific definitions of such items in the future. Details for these three reports are to be found on the EFSA web site, [www.efsa.europa.eu](http://www.efsa.europa.eu) under 'vectors/fish molluscs/crustaceans'.

Currently, apart from further work on the issue of vectors of finfish diseases, the main aquatic thrust of EFSA's Animal Health and Welfare Panel is on the welfare of farmed fishes, where a veterinary perspective has long been necessary. Recently, however, the Panel also produced an opinion of great interest to the marine mammal community in its report on Welfare Aspects of Slaughter and Skinning of Seals.

This has attracted great interest as might be expected and while neither of the two extreme sets of views on the matter can be satisfied it provides a careful analysis of all of the evidence for the different methodologies. The report, produced under the Chairmanship of respected veterinary ethicist Professor Dr David Morton, will be of interest to all aquatic animal veterinarians.  
[http://www.efsa.eu.int/EFSA/efsa\\_locale-1178620753812\\_AboutEfsa.htm](http://www.efsa.eu.int/EFSA/efsa_locale-1178620753812_AboutEfsa.htm).

### **FARMED/WILD FISH FOOD SAFETY**

**Opinion of the Scientific Panel on Contaminants in the Food Chain on a Request from the European Parliament Related to the Safety Assessment of Wild and Farmed Fish; Question N° EFSA-Q-2004-22**

Adopted 22 June 2005;  
EFSA Journal (2005) 236, 1 - 118

## Summary:

EFSA was requested by the European Parliament to conduct a scientific assessment of the health risks related to human consumption of wild and farmed fish. An EFSA Interpanel working group was set up to conduct this assessment. The opinion focused on the following finfish species as being marketed to a significant amount in the European Union: salmon, herring, anchovies, tuna, mackerel, pilchards, rainbow trout and carp. A special focus was also given to Baltic herring at the request of the European Parliament. Of the selected fish, salmon, rainbow trout and carp are predominantly or exclusively farmed. The other species are predominantly caught from the wild. About two-thirds of fish consumed in the EU is caught from the wild.

Species, season, diet, location, lifestage and age have a major impact on both the nutrient and contaminant levels of fish. These levels vary broadly within species and between species in both wild and farmed fish. There is a need for standardisation of sampling procedures before a robust comparison of wild and farmed fish can be made. From the limited data available it seems that if there are any differences between farmed and wild fish, they are small when taking into account the above mentioned factors. However, regional differences exist, e.g. in the Baltic Sea.

Contaminants in fish derive predominantly from their diet, and levels of bioaccumulative contaminants are higher in fish that are higher in the food chain. Whilst it is not possible to control the diet of wild fish, the levels of contaminants, and of some nutrients, in farmed fish may be modified by altering their feed. Fish meal and fish oil, are the most important sources of contamination of farmed fish feed with dioxin-like compounds. EU regulations on polychlorinated dibenzo-*p*-dioxins and furans (PCDD/F) in fish feed were introduced in 2002; the planned inclusion of the dioxin-like polychlorinated biphenyls (DL-PCBs) in the regulations may help to reduce levels of these contaminants in farmed fish.

Fatty fish is an important source of long chain n-3 polyunsaturated fatty acids (LC n-3 PUFA). Other substantial natural sources of LC n-3 PUFA are human milk and marine algae. Farmed fish tend to have higher total lipid levels with lower proportions of LC n-3 PUFA than wild fish. Together, these differences mean that the amount of LC n-3 PUFA per portion of fish is similar. Replacement of fish products by vegetable protein and oils in fish feed or decontamination procedures may be a possible means of reducing some contaminant levels. However modification of the fish oil inclusion rate

may change the fatty acid composition and in particular reduce the LC n-3 PUFA levels in farmed fish.

There is evidence that fish consumption, especially of fatty fish (one to two servings a week) benefits the cardiovascular system and is suitable for secondary prevention in manifest coronary heart disease. There may also be benefits in foetal development, but an optimal intake has not been established.

Fish can contribute significantly to the dietary exposure to some contaminants, such as methylmercury, persistent organochlorine compounds, brominated flame retardants and organotin compounds. The most important of these are methylmercury and the dioxin-like compounds, for which high level consumers of certain fish may exceed the provisional tolerable weekly intake (PTWI) even without taking into account other sources of dietary exposure. Such exceedance is undesirable and may represent a risk to human health if repeated frequently. However, eating for example meat instead of fish will not necessarily lead to decreased exposure to dioxin-like compounds. Intakes of the other contaminants in fish reviewed in this opinion were not a health concern, because they do not contribute significantly to total dietary exposure and/or it is very unlikely that even high level consumers of fish exceed the health-based guidance values, if available.

The greatest susceptibility to the critical contaminants, e.g. methylmercury and the dioxin-like compounds occurs during early development. Exposure during this life stage results from the total amount in the mother's body. For methylmercury it is possible for a woman to decrease the amounts in her body by decreasing intake in the months preceding and during pregnancy, whereas this is not possible for the PCDD/Fs and DL-PCBs because it would take many years to decrease the levels in the body significantly.

This evaluation focussed on fish that are widely available in the EU, and likely to be consumed most frequently. Of these, the highest levels of methylmercury are found in tuna, which is mostly caught from the wild. The fish with the highest levels of PCDD/F and DLPCBs are herring which are caught from the wild and salmon which are mostly farmed. Frequent consumers of Baltic herring and wild Baltic salmon are more likely to exceed the PTWI for PCDD/F and DL-PCBs than other consumers of fatty fish

Overall the Panel concluded that with respect to their safety for the consumer there is no difference between wild and farmed fish.

## **AMENDED U.S. FEDERAL ORDER – VIRAL HEMMORRHAGIC SEPTICEMIA (VHS)**

April 2, 2008

The purpose of this Federal Order is to prevent the spread of viral hemorrhagic septicemia (VHS) into aquaculture facilities. This Order amends and replaces the Order for VHS issued on November 8, 2007, by allowing the importation or interstate movement of VHS-susceptible live species of fish (as specified below) under certain conditions, while continuing to prevent the spread of VHS.

This Order is issued pursuant to the Animal Health Protection Act (AHPA). The AHPA authorizes the Secretary of Agriculture to prohibit or restrict the importation or movement in interstate commerce of any animal, article, or means of conveyance if the Secretary determines that the prohibition or restriction is necessary to prevent the introduction or dissemination of any pest or disease of livestock into or within the United States. Due to outbreaks of VHS, the Administrator of the Animal and Plant Health Inspection Service (APHIS) has determined that it is necessary, in order to prevent the spread of VHS into aquaculture facilities, to prohibit or restrict the importation of VHS-susceptible species of live fish from two Canadian Provinces into the United States and to prohibit or restrict the interstate movement of the same species of live fish from VHS-affected or at-risk States.

All international and interstate movement of VHS-susceptible species of live fish from affected or at-risk Provinces or States that is not specified as permissible by this Order is prohibited.

### 1. Affected or At-Risk Regions:

U.S. States: Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin.  
Canadian Provinces: Ontario, Quebec

### 2. VHS-Susceptible Species of Live Fish -

The current list of species of VHS-susceptible live fish affected by this Order is located on the APHIS Web site at [www.aphis.usda.gov/vs/aqua/](http://www.aphis.usda.gov/vs/aqua/). A paper copy of this list may also be received by calling 301-734-6188.

### 3. Permissible International Movement of VHS-Susceptible Species of Live Fish -

(a) VHS-susceptible species of live salmonid fish from affected Canadian provinces may be imported into the United States only if the shipment meets the requirements set forth in title 50, Code of Federal Regulations, Sections 16.13 (a) (3) and 16.13 (b).

(b) VHS-susceptible species of live non-salmonid fish from affected Canadian provinces may be imported into the United States for direct slaughter under an APHIS-issued permit.

(c) Catch and release fishing activities involving VHS susceptible fish are permissible. Catch and release fishing activities are defined as: fishing for pleasure or recreational purposes, including tournaments, organized fishing competitions, fishing derbies, or other types of contests where individuals catch, compare and release live VHS-susceptible fish, except any VHS-susceptible fish used or intended to be used as live bait.

### 4. Permissible Movement of VHS-Susceptible Species of Live Fish from VHS-affected or at-risk States -

#### (a) Movement to slaughter facilities:

VHS-susceptible species of live fish may be moved interstate from any VHS-affected or at-risk State to any other State if all of the following conditions are met:

- (1) The fish are for human consumption.
- (2) The fish, if not tested for VHS, are accompanied by a valid form VS 1-27 (Permit for Movement of Restricted Animals) issued by an APHIS area office.
- (3) The fish are transported to a State-inspected slaughter facility.

The slaughter facility must discharge waste water to a municipal sewage system that includes waste water disinfection. Alternately, the slaughter facility may discharge to either a non-discharging settling pond or a settling pond that disinfects according to all applicable EPA and State regulatory criteria. Offal, including carcasses, from the slaughter facility must be either rendered or composted.

#### (b) Movement to research and diagnostic laboratories:

VHS-susceptible species of live fish may be moved interstate from VHS-affected or at-risk States to research or diagnostic laboratories in any State if all of the following conditions are met:

- (1) The fish are transported to an approved research or diagnostic laboratory. Laboratory approval to work with VHS shall be authorized by the State, Tribal or Federal competent authority for aquatic animal health.
- (2) The fish are accompanied by a valid form VS 1-27 (Permit for Movement of Restricted Animals) issued by an APHIS area office.
- (3) Effluent and carcasses shall be considered medical waste and shall be disposed of at the receiving research or diagnostic facility according to all applicable EPA and State regulatory criteria.

#### (c) Catch and release fishing activities:

Catch and release fishing activities involving VHS susceptible fish are permissible. Catch and release fishing activities are defined as: fishing for pleasure



or recreational purposes, including tournaments, organized fishing competitions, fishing derbies, or other types of contests where individuals catch, compare and release live VHS-susceptible fish, except any VHS-susceptible fish used or intended to be used as live bait.

(d) Other movement:

VHS-susceptible species of live fish from VHS-affected or at-risk States may be moved interstate to any State if the following conditions are met:

The fish are transported with documentation from the appropriate State, Tribal, or Federal competent authority(s) for aquatic animal health stating that the fish have tested negative for VHS virus according to (i) the USFWS/AFS-FHS Standard Procedures for Aquatic Animal Health Inspections section of the Suggested Procedures for the Detection and Identification of Certain Finfish and Shellfish Pathogens 2005 Edition, American Fisheries Society, Fish Health Section, Bethesda, Maryland (commonly referred to as the AFS Blue Book); or (ii) the World Organization for Animal Health (OIE) Manual of Diagnostic Tests for Aquatic Animals, Fifth Edition (2006), Chapter 2.1.5, OIE, Paris, France.

5. Permissible Movement of VHS-Susceptible Species of Live Fish through VHS-affected or at-risk States -

For live fish originating from non-restricted areas, permission to transit through a State to another State of destination is not required under this Order.

## AQUATIC VETERINARY MEETINGS & CEPD

(Continuing Education & Professional Development)

**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, 2008. Third Annual Workshop on the Disease of Marine Species (The Role of Pathology in Marine Mammal Health & Disease Investigations).** Hotel Selene, Via Pontina Km 30, Rome, Italy.

For more information, visit <http://www.cldavis.org/courses/upcoming.html#81>.

**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-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).

**May 18-31, 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 19-23, 2008. World Aquaculture 2008.** Busan, Korea. Further details at [www.was.org](http://www.was.org).

**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, USA.

For more information go to [www.conference.ifas.ufl.edu/ame/seaveti](http://www.conference.ifas.ufl.edu/ame/seaveti).

**June 22-26, 2008. 7<sup>th</sup> Symposium on Diseases in Asian Aquaculture.** Howard International House, Taipei, Taiwan. For more information visit <http://homepage.ntu.edu.tw/~daaseven>.

**June 22-27, 2008. 10<sup>th</sup> (Shell)Fish Immunology Workshop.** Wageningen University & Research Centre, Wageningen, The Netherlands. For more information visit [www.cbi.wur.nl/UK/fish\\_workshop](http://www.cbi.wur.nl/UK/fish_workshop).

**June 24-25, 2008. Fish Disease Workshop.** The Northwest Indian Fisheries Commission and the Washington Department of Fish and Wildlife Western, Shilo Inn Suites Hotel, Ocean Shores WA. [www.nwifc.org/western08](http://www.nwifc.org/western08).

**July 9-12, 2008. 2008 Annual Meeting of the FHS-American Fisheries Society.** 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

[A WAVMA Function – see full details below](#)

**July 27-31, 2008. Aquatic Veterinary Medicine Program – World Veterinary Congress.** Vancouver, British Columbia, Canada.

[A WAVMA Function – see full details below](#)

## COMPLIMENTARY REGISTRATION FOR AVMA CONVENTION AND THE WORLD VETERINARY CONGRESS

Are you prepared to spend a few hours promoting WAVMA and aquatic veterinary medicine with your veterinarian colleagues, in return for free registration?

WAVMA will have a booth at the 2008 AVMA Convention (New Orleans, USA – July 19-22) and the 2008 World Veterinary Congress (Vancouver, British Columbia, Canada – July 27-31). For complimentary exhibitor registration which will also allow you access to all education programs, contact Chris Walster ([chris.walster@onlinevets.co.uk](mailto:chris.walster@onlinevets.co.uk)) **before May 31**.



**July 19-22, 2008. Aquatic Veterinary Medicine Sessions – 145<sup>th</sup> AVMA Annual Convention.** New Orleans, Louisiana, USA. Enjoy 3 1/2 days of aquatic veterinary CEPD during the AVMA Convention. For registration, housing and travel information visit [www.avmaconvention.org](http://www.avmaconvention.org).

### Join WAVMA at the WAVMA Booth, and at an Informational Assembly & Reception.

Visit the WAVMA Booth and join your colleagues at a WAVMA Informational Assembly & Reception for good food and drink, and the opportunity for winning one of several aquatic veterinary books. This is your chance to inform other veterinarians about the expanding opportunities in the fastest growing discipline of veterinary medicine, hear from leaders in aquatic veterinary medicine on emerging issues, and to network with colleagues.

#### Informational Assembly & Reception:

Monday, July 21; 6:30 – 9:30 pm. Hilton New Orleans Riverside, (2 Poydras Street) Marlborough Suite A.

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

**July 28-August 1, 2008. Water Reuse for Intensive Fish Culture.** The Conservation Fund Freshwater Institute, Shepherdstown, WV USA. For complete information, visit <http://www.conservationfund.org/node/665>.

**July 28-August 1, 2008. Immunity and Disease Resistance in Fish - A special symposium, 8th International Congress on the Biology of Fish.** Portland, Oregon.

For more information go to <http://fishbiologycongress8.usgs.gov>

**August 3-6, 2008 – Australasian Aquaculture 2008.** Brisbane, Australia. Further details at [www.was.org](http://www.was.org).

**August 3-8, 2008. Coral Tissue Slide Reading Workshop.** Mote Marine Laboratory, Tropical Research Laboratory. Summerland Key, Florida, USA. [http://isurus.mote.org/Keys/slide\\_workshop\\_2008.phtml](http://isurus.mote.org/Keys/slide_workshop_2008.phtml).

**August 9-17, 2008. Disease of Corals & Other Reef Organisms.** Mote Marine Laboratory, Tropical Research Laboratory. Summerland Key, Florida, USA. [http://isurus.mote.org/Keys/disease\\_workshop\\_2008.phtml](http://isurus.mote.org/Keys/disease_workshop_2008.phtml).

**August 25-29, 2008. Health Management of Laboratory Fish.** Mount Desert Island Biological Laboratory, Salisbury Cove, Maine. A short course for technical staff, graduate students, postdoctoral fellows, junior faculty and investigators who utilize or plan to utilize aquatic models in laboratory research. For complete information, visit <http://www.mdibl.org/courses/fishhealth08.shtml>.

**September 6-9, 2008. International Conference on Fish Diseases and Fish Immunology.** Reykjavik, Iceland. Further details at [www.yourhost.is/content/view/211/141/lang.is](http://www.yourhost.is/content/view/211/141/lang.is)

**September 17-20, 2008. The 6th Annual Symposium on Conservation and Biology of Tortoises and Freshwater Turtles,** Tucson, Arizona. For more information contact Conference Program Chairman Don Boyer ([DBoyer@sandiegozoo.org](mailto:DBoyer@sandiegozoo.org))

**July 18-22, 2009 International Aquaculture Biosecurity Conference: Practical Approaches for the Prevention, Control and Eradication Disease,** University of Prince Edward Island.

Organizing entities: World Aquatic Veterinary Medical Association; Center for Food Security and Public Health, Iowa State University; Institute for International Cooperation in Animal Biologics, Iowa State University; College of Veterinary Medicine, Iowa State University; Atlantic Veterinary College, University of Prince Edward Island; American Veterinary Medical Association

**A WAVMA Function – full details to be announced**

**2008 WAVMA/WVC Aquatic Veterinary  
Continuing Education and Professional Development  
Educational Extravaganza**



**29th World Veterinary Congress**

CELEBRATE OUR DIVERSITY

**July 27-31, 2008  
Vancouver, British Columbia, Canada**

**Save on Late/Onsite Registration  
ONLINE REGISTRATION CLOSES June 6, 2008**

Held in conjunction with the [World Veterinary Congress](#) and includes:

- The 2nd WAVMA Annual General Meeting (**July 27**)
- Three days of action packed, high quality Aquatic Veterinary CEPD Continuing Education and Professional Development (**July 28-31**)
- A Member's Reception (**July 30**)
- A WAVMA Special Session "Issues and Solutions Facing Aquatic Veterinary Medicine" (**July 31**)

**Interested in attending WAVMA Functions?**

Preregister at [www.WAVMA.org](http://www.WAVMA.org)

**OPTIONAL TOURS** Vancouver, Canada is a beautiful and inviting city. Situated on the 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.**

**Online Registration, Travel, Accommodation, Social Events and the preliminary aquatic veterinary medicine sessions, can be accessed by going to [www.worldveterinarycongress2008.com](http://www.worldveterinarycongress2008.com).**



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

Interested in attending the WAVMA Meetings, Reception or Special Session?  
 Please pre-register (at no cost or obligation) online at [www.WAVMA.org](http://www.WAVMA.org) to allow us to correctly order space and refreshments.

	WAVMA Meetings	Congress General Sessions	WVC-WAVMA CE Sessions	WAVMA Special Session "Emerging Aquatic Vet Issues"			
Time	Sunday July 27	Monday July 28	Tuesday July 29	Wednesday July 30	Thursday July 31		
8:00		Opening Ceremony					
8:30		KEYNOTE SPEAKERS One World - One Medicine - One Health  <i>Bernard Vallat (France) &amp; Brian Evans (Canada)</i>	European Aquatic Animal Health Programs <i>C. Walster (UK)</i>	Approaches to Emerging Aquatic Diseases <i>E-M. Bernoth (Aus)</i>	Evidence-based Aquaculture Epidemiology/Surveillance <i>Larry Hammell (Canada)</i>		
8:45							
9:00							
9:15				Asian Aquatic Animal Health Approaches <i>R. Subasinghe (Italy)</i>	Infectious Salmon Anemia: The International Perspective <i>L. Hammell (CDN) &amp; H. Rodger (Ireland)</i>	Evidence-based VHS Policy <i>Grace Karreman (Canada)</i>	
9:30							
9:45							
10:00	WAVMA Board & Committee Meetings Open to Members	Exhibit Hall Break	Koi Herpesvirus: The International Perspective <i>C. Walster (UK)</i>		Use of Evidence-based Information in Aquaculture <b>Panel/Audience Discussion</b>		
10:15							
10:30			KEYNOTE SPEAKERS One World - One Medicine - One Health	Exhibit Hall Break	Exhibit Hall Break	Exhibit Hall Break	
10:45							
11:00				How to Expand Cat/Dog/ Exotic Animal Practice Into Aquatics <i>H. Roberts (USA)</i>	Viral Hemorrhagic Septicemia: International Perspective <i>G. Karreman/ H. Rodge</i>	Aquatic Medicine & Public Issues: The Vet's Responsibility <i>H. Mitchell (USA)</i>	
11:15		KEYNOTE SPEAKERS One World - One Medicine - One Health  <i>Lonnie King (USA) &amp; Hugh Lewis (USA)</i>			Developing Solutions <b>Panel/Audience Discussion</b>		
11:30							
11:45							
12:00 - 13:15	Break for Lunch	Break for Lunch	Break for Lunch	Break for Lunch	WVC Ends/ Break for Lunch		
13:30	WAVMA AGM Open to all interested parties	World Organisation for Animal Health (OIE); Australia's AQUAPLAN & AQUAVETPLAN <i>E-M. Bernoth (Australia)</i>	Infectious Ornamental/ Pet FinFish Diseases <i>H. Roberts (USA)</i>	VHS (cont) <i>G. Karreman (CDN) &amp; H. Rodger</i>	Aquatic Animal Welfare <i>D. Scarfe (USA)</i>		
13:45						Developing Solutions <b>Panel/Audience Discussion</b>	
14:00				Noninfectious Ornamental/ Pet Finfish Diseases <i>H. Roberts (USA)</i>	Bacterial Kidney Disease: International Perspective <i>Rodger (Ireland)/Hammell (Canada)</i>	Non-Veterinarians in Veterinary Practice <i>C. Walster (UK)</i>	
14:15							
14:30							
14:45					Developing Solutions <b>Panel/Audience Discussion</b>		
15:00	Tea/Coffee Break	Exhibit Hall Break	Exhibit Hall Break	Exhibit Hall Break	Developing Solutions <b>Panel/Audience Discussion</b>		
15:15	WAVMA AGM (cont)	Evolution of Canada's NAAH Program <i>G. Karreman (Canada)</i>	European Aquatic Therapeutics and Biologics <i>C. Walster (UK)</i>	BKD (cont) <i>Rodger/ Hammel</i>	Tea/Coffee Break		
15:30						Aquatic Veterinary Education, Training & Clinical Competency <i>D. Scarfe (USA)</i>	
15:45							
16:00				Evolution of the USA's NAAH Plan <i>G. Egrie (USA)</i>	North American Aquatic Therapeutics and Biologics <i>J. Brackett (Canada)</i>	Diseases – Synopsis & <b>Panel/Audience Discussion</b>	Developing Solutions <b>Panel/Audience Discussion</b>
16:15							
16:30							
16:45							
Eve	Welcome Reception 19:00– 21:30		WAVMA Reception 19:00–21:00	Congress Banquet 19:30–22:00	WAVMA Board Meeting 18:00–21:00		

## 2007/2008 SPONSORS AND SUPPORTERS

Please support our sponsors and let them know you appreciate their support for WAVMA



## CONTACT CORNER

### EXECUTIVE BOARD (2008)

#### President

Dr. Ron Roberts (UK)  
+44 (178) 683-3078  
[heronpisces@btinternet.com](mailto:heronpisces@btinternet.com)

#### President-Elect

Dr. Hugh Mitchell (USA)  
+1 (425) 821-6821  
[hugh.mitchell@novartis.com](mailto:hugh.mitchell@novartis.com)

#### Treasurer

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

#### Past President

Dr. Peter L. Merrill (USA)  
+1(301)-210-0940  
[wetvet@comcast.net](mailto:wetvet@comcast.net)

#### Secretary

Dr. Christopher I. Walster (UK)  
+44 (178) 525-8411  
[chris.walster@onlinevets.co.uk](mailto:chris.walster@onlinevets.co.uk)

#### Director at Large

Dr. Julius Tepper (USA)  
+1 (631)-281-8777  
[dvm246@aol.com](mailto:dvm246@aol.com)

## WAVMA COMMITTEES

Please feel free contact the following if you are interested in serving on any of these Committees:

#### Budget & Finance

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

#### Ethic & Governance

Dr. Peter L. Merrill (USA)  
+1 (301) 210-0940  
[wetvet@comcast.net](mailto:wetvet@comcast.net)

#### Membership

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

#### Communications

Dr. Nick Saint-Erne (USA)  
+1 (623) 587-2935  
[nsainterne@gmail.com](mailto:nsainterne@gmail.com)

#### Meetings

Dr. Julius Tepper (USA)  
+1 (631) 281-8777  
[dvm246@aol.com](mailto:dvm246@aol.com)

#### Practitioner Credentialing Committee

DR. RON ROBERTS  
+44 (178) 683-3078  
[heronpisces@btinternet.com](mailto:heronpisces@btinternet.com)

**Aquatic Veterinary Education**  
-open-

# World Aquatic Veterinary Medical Association

## 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  
4211 Welbeck Dr.  
Ames, IA 50010-4018 USA  
Phone: (515) 441-1509  
e-Mail: [dulep@iastate.edu](mailto:dulep@iastate.edu)

<b>Credit Card Payments</b>	<input type="checkbox"/> Visa; <b>or</b> <input type="checkbox"/> Master Card
Name on Card _____	
Card Number _____	
Card Security Code _____	Signature _____
<small>For e-Copies Typing your name will indicate your signature</small>	

Please complete **all mandatory fields marked with an\***. Please 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 ? or /cell/mobile ?  
Secondary Phone \_\_\_\_\_ Is this a business ? / home ? or /cell/mobile  ?  
\*Primary e-Mail \_\_\_\_\_; Secondary e-Mail \_\_\_\_\_  
(Secondary e-Mail addresses will be used if the primary address becomes non-functional)

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

**Full Member** (US\$100)       **Student Member** (US\$50)  
*Primary Veterinary Degree* (as awarded e.g. DVM; VMD; BVMS; DEDV; Dr. vet. med.; MVZ, etc) \_\_\_\_\_  
Year \_\_\_\_\_; University \_\_\_\_\_; City \_\_\_\_\_; Country \_\_\_\_\_

**Veterinary Technician/Nurse Member** (US\$50)  
Name of supervising veterinarian \_\_\_\_\_; Phone \_\_\_\_\_; e-mail \_\_\_\_\_

**Affiliate Member** (US\$100)  
\*Degree \_\_\_\_\_; \*Year \_\_\_\_\_; \*University \_\_\_\_\_; \*City \_\_\_\_\_, \*Country \_\_\_\_\_

**Allied Veterinary Organization Member** (US\$500)  
\*Total number of 2007 members \_\_\_\_\_; \*Number (or %) of members that are *veterinarians* \_\_\_\_\_;  
\*Estimated number of members involved with *aquatic veterinary medicine* (any species/disciplines) \_\_\_\_\_

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

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

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

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

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

**Veterinary Technician/Nurse Member**—any non-veterinarian that is employed to assist in the legal practice of veterinary medicine, while under the direct supervision or direction of a veterinarian. Veterinary Technician/Nurse Members are entitled to all the rights and privileges of 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.