

FISH HEALTH NEWSLETTER

American Fisheries Society/Fish Health Section

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President's Report:

March/April 2006

I hope this message finds everyone doing well in 2006 and I hope all our members in the south are recovering nicely from the last year's hurricane season and preparing for this year. I have been asked by the parent society to pose a question to our general membership. What services can the AFS provide to its members to enhance the value of your membership? In other words what can the parent society do for you! This, of course, can cover a lot of ground and can elicit a lot of responses, but some useful ideas may be generated. If you wish to respond to this request send your ideas to me at jhawkel@lsu.edu and I will submit them as a top ten list.

AFS Midyear Governing Board Meeting

The American Fisheries Society (AFS) held its midyear governing board meeting in Bethesda, Maryland on March 11, 2006. The AFS has certainly grown into a very financially stable organization under the stewardship of Executive Director Gus Rassam, with publications being the main source of revenue. With this prosperity in mind, it has been suggested by some that to increase membership certain provisions could be made to encourage new members, such as, reducing fees and offering travel scholarships particularly for students. This is reflected to some degree in new student membership rates for 2006. For \$19 students receive AFS membership, access to AFS online journals and the info database. The executive director has indicated that the membership database should be available soon and should make tracking membership in sections divisions and chapters much easier. This has been a big problem in the past and hopefully the new database will make things easier for those needing current information on membership. An important motion that was approved involved assigning the Southern Division of the AFS administrative and programmatic responsibilities for hurricane relief in the Gulf Coast region impacted by Katrina and Rita. Don Jackson will serve as

the chair of this AFS Hurricane Relief Task Force. If you were in an area affected by these storms you should contact the Southern Division AFS office to see if you qualify for waivers of membership fees or scholarships to attend meetings. Dr. Jackson's contact information is as follows: Dr. Don Jackson, Mississippi State University, 662-325-7493, djackson@CFR.msstate.edu.

Support for Workshops

The Fish Health Section supported the national effort to manage important fish diseases by financially supporting the Annual Whirling Disease Symposium held February 9-10 in Denver, Colorado and the Bacterial Kidney Disease BKD workshop held November 15-17, 2005 in Seattle Washington.

International Symposium on Aquatic Animal Health

The 5th International Symposium on Aquatic Animal Health (ISAAH) is to be held September 2-6, 2006 at the Marriott, San Francisco, California. I would like to take this opportunity to thank the Program Committee chairs, Vicki Blazer and Pete Taylor along with the program committee, Diane Elliott, Andy Goodwin, and Sue Marcquenski for their hard work in putting together a very strong group of plenary speakers and special sessions. I would also like to thank Ron Hedrick and Bev Dixon for local arrangements and fundraising in California and Ron Thune for fundraising efforts. The details of the program will appear on the website very soon. The deadline for abstracts is May 1st but this deadline will likely be extended. Please encourage everyone in your special area of interest to attend and present a paper. If you recall from the previous meeting the range of topics can be very wide and encompasses all areas of aquatic animal health. The annual meeting of the Fish Health Section will be combined with the ISAAH.

Best Wishes to all for a productive 2006 and I look forward to seeing everyone in San Francisco!

John Hawke
President FHS

FHS Awards – Call For Nominations:

The FHS Awards committee is currently seeking nominations for the **S.F. Snieszko Distinguished Service Award (SDSA)**, the **Special Achievement Award**, and the **Snieszko Student Travel Awards**. Below you will find a description of each award, criteria for the award and instructions for nominations and applications. The deadline for nominations and applications is **May 15, 2006**. Please send nominations and applications to Pete Taylor at the following address:

Pete Taylor
1440 Abernathy Creek Road
Longview, WA 98632
Pete_Taylor@fws.gov

S.F. Snieszko Distinguished Service Award (SDSA)

This is the highest award in the FHS presented for the purpose of honoring individuals for outstanding accomplishments in the field of aquatic animal health. Please visit the following website to view past recipients of this award (<http://www.fisheries.org/fhs/snieszko.htm>). The criteria for this award are as follows:

- Individuals to be considered for this award must be nominated by a current member of the FHS
- Persons making nominations must obtain six letters of recommendation from fish health professionals that support the nominee's dedication to research, teaching and/or service to the field of aquatic animal health. The six letters along with the curriculum vitae for the nominee should be sent to the Award Committee with a letter of nomination.
- Because this is a career award, candidates should have a significant number of active years in science within the fish or shellfish health field as well as significant accomplishments, which are not limited to but can include the following examples:
 - Candidates should have a significant number of research publications in recognized peer reviewed journals and/or book chapters and books within the subject of fish or shellfish health.
 - A candidate must have been active in finfish and shellfish health research or diagnostics as indicated by significant publications and/or secured grants for graduate student thesis projects, and/or administration of a successful finfish or shellfish health program or laboratory.
 - Accomplishment by a candidate of a major discovery regarding a new finfish or shellfish disease or diseases and/or continued significant contributions to the understanding of a previously discovered disease or diseases.
 - Previous recognition by peer through other society, committee or distinguished service awards and/or by elected or appointed chair/presidential positions.

FHS members interested in nominating an individual for this award should send the required materials as described above to Peter Taylor.

Special Achievement Award

This award is presented to a FHS member who has made a significant accomplishment in the fish health field regarding a new discovery, diagnostic method, publication, etc. This award is for a one-time accomplishment and may or may not be given out every year. Please visit the following website (http://www.fisheries.org/fhs/special_achievement_award.htm) to view past recipients of this award. This award may be given for:

- A unique contribution to the fish health field (such as a new diagnostic tool, a new technique to control disease, etc.)
- A significant research accomplishment
- Outstanding leadership in resolving a major aquatic animal health program

This achievement must meet high standards of science and survive peer review.

Individuals to be considered for this award must be nominated by a current member of the FHS. The letter of nomination should clearly state:

- The accomplishment
- The significance of the accomplishment to the field
- The implication of the accomplishment to aquaculture (local, regional, national, or worldwide)

Copies of any articles or other documents relating to the work should be included. Nominations for the Special Achievement Award should be made within one year of the accomplishment and may be submitted to the Chair of the Award Committee at any time. Names of qualifying candidates and supporting documents will be submitted to the

EXCOM members for a majority vote on whether the award will be presented.

Snieszko Student Travel Awards

This award, a sum of up to \$1000, is awarded to one or more students yearly to defray travel to the Annual FHS meeting to present a talk in the aquatic animal health field. Please visit the following website (http://www.fisheries.org/fhs/snieszko_student_award.htm) to view past recipients of the award. The requirements from student applications are as follows:

- Letter of application and statement of any special financial circumstances (i.e. not supported by a stipend, etc.)
- Curriculum vitae must be submitted along with three letters of recommendation
- Itemized budget on how money is to be spent, i.e. travel, meals, lodging and registration
- Copy of abstract of paper to be presented
- The student must be a member of the AFS/Fish Health Section

The applications will be judged by the following criteria:

- Quality of abstract
- Significance of/interest in the research
- Academic achievement
- Professional achievement
- Financial need

Students interested in applying for the Snieszko Student Travel Awards should prepare an application packet containing the above items and send to Pete Taylor at the address provided above.

Meeting and Workshop Announcements:

47th Western Fish Disease Workshop

Victoria, British Columbia, Canada

June 26 - 28, 2006

The meeting is hosted by the Department of Fisheries and Oceans, Pacific Biological Station, Nanaimo, BC. It will be held at the Laurel Point Inn in Victoria. The Fish Health Section Continuing Education Workshop (June 26, 2007) will be organized by Craig Olsen and is entitled, "The Changing World of Fish Nutrition". Abstracts are due May 26, 2006 and please follow the format described below.

Some travel assistance funds are available for students who attend the workshop and present a paper. The total sum available will be divided by the number of students who apply (and qualify).

Room rates are very reasonable (\$95.00 Canadian single or double), but this price is only guaranteed until April 25, 2006 so please make your reservation early. Accommodations in Victoria can be difficult to find and very expensive in the summer months. Use the attached reservation form or quote group reservation # 128019 to obtain the conference room rate.

For more information re registration, abstracts, student travel, etc, see the FHS website (<http://www.fisheries.org/fhs/>) or contact:

Garth Traxler or Dorothee Kieser
Pacific Biological Station
Department of Fisheries and Oceans
3190 Hammond Bay Road
Nanaimo, BC, Canada V9T 6N7
Telephone: 250-756-7000
Email: TraxlerG@pac.dfo-mpo.gc.ca
KieserD@pac.dfo-mpo.gc.ca



Laurel Point Inn

Reservation Form

Please fax to the Laurel Point Inn **(250) 386-9547**, call toll-free **1-800-663-7667** to reserve your accommodations or e-mail this form to reservations@laurelpoint.com.

Group Name: Department of Fisheries & Oceans

Group Arrival Date: June 25, 2006

Group Reservation Number: #128019

Name: _____ Phone: _____

Address: _____

City: _____ State/Province: _____ Zip/Postal Code: _____

Please mark your desired room type:

Occupancy: Single _____ Double _____

North Wing Harbourview Room - 1 King bed _____ or 2 Double beds _____

Rate: \$95.00 Single or Double for Triple add \$15.00

South Wing Studio Suite - 1 Queen bed _____ or 2 Single beds _____

Rate: \$149.00 Single or Double for Triple add \$15.00

Please note your arrival and departure date:

Arrival Date: _____ Check-in time is 3:00 PM

Departure Date: _____ Check-out time is 11:30 AM

Reservations must be received by the hotel **60 days** prior to arrival date, **(on or before April 25th)**. Thereafter, reservations are subject to availability only and higher room rates may apply. To guarantee your reservation, please fill out the credit card information below.

Credit Card Type: _____ Credit Card No.: _____

Expiry Date: _____
Name Printed On Card: _____

Cancellations must be received **24 hours** prior to arrival date, otherwise room and tax for the first night of accommodation will be charged to your account.

We Look Forward To Being Your Hosts!

Laurel Point Inn
680 Montreal Street
Victoria, BC V8V 1Z8
1-800-663-7667
www.laurelpoint.com

Abstract Format for Western Fish Disease Workshop 2006

Follow the example below, using 12 pt times font and set left/right margins to 1.5 inches on letter-sized paper (left justification); place an asterisk after the presenter. Submit an attachment to Garth Traxler (traxlerg@dfo-mpo.gc.ca) or Dorothee Kieser (kieserd@dfo-mpo.gc.ca) or call 250-756-7068 for other arrangements.

STRATEGIES FOR THE DIAGNOSIS OF *CERATOMYXA SHASTA*: FROM THE RESEARCH LAB TO THE FIELD

Ken Peters^{2*}, Oswaldo Palenzuela³, Melanie Fox¹ and Jerri Bartholomew^{1*}

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⁽²⁾ U.S. Fish and Wildlife Service, 920 Technology Blvd., Suite G, Bozeman, MT 59718 E-mail: ken_peters@mail.fws.gov

⁽³⁾Instituto de Acuicultura Torre la Sal (CSIC). 12595 Ribera de Cabanes, Castellón, Spain. E-mail: oswaldo@iats.csic.es

The complexity of the life cycle of myxozoans, involving dramatic morphological changes, and the similarity of the vegetative stages of even distantly related species, are traditional limitations to the accurate diagnosis of these fish parasites. The standard methods for diagnosis reliably detect and identify myxozoan parasites only when the fish are in late stages of the infection, and thus these techniques are not useful for surveillance of populations or for detecting early infections. New diagnostic technologies based on the detection of nucleic acids from the parasite, like *in situ* hybridization and the polymerase chain reaction (PCR), provide increased sensitivity and specificity when compared to more traditional, morphological approaches. A simple PCR assay has been developed for the diagnosis of *Ceratomyxa shasta* that allows detection of the different life stages using a simple and inexpensive protocol. The applicability of this PCR as a routine diagnostic and field surveillance tool was demonstrated in a small scale trial by comparing the results with examination of standard wet mount examinations. In addition, a non-lethal adaptation of the assay was developed which, although less sensitive than the lethal test, was significantly more sensitive than visual examination.

5th International Symposium on Aquatic Animal Health

The 5th ISAAH will be held on September 2-6, 2006 in San Francisco, California USA. The symposium program will emphasize the multidisciplinary nature of aquatic animal health. You are invited to contribute and share experiences and expertise from around the world. The program includes 12 plenary lectures, more than 200 oral presentations, and up to 150 posters. Plenary lectures by outstanding speakers of international stature will address topics of broad interest. Oral presentations (15 minutes) will run as 3 concurrent sessions. Posters will be presented over a 3-day period and will include in-session activities.

Important Dates:

- The deadline for abstract submission has been extended to **June 2, 2006**
- The deadline for early registration rates is **June 15, 2006**

Specific information about the symposium (including the program overview, presentation topics, online registration, travel information, call for papers, tentative symposium schedule, and online abstract submission) can be found at the symposium website: http://www.fisheries.org/fhs/isaah_2006.htm. New information regarding the program has recently been updated. Please visit this website for the latest news and announcements as they will be updated periodically.

60th Annual Southeastern Association of Fish and Wildlife Agencies Conference

The Virginia Department of Game and Inland Fisheries (VDGIF) invites you to the 60th Annual Southeastern Association of Fish and Wildlife Agencies Conference at the Marriott and Sheraton Norfolk Waterside Hotels, Virginia, November 5-8, 2006. Reservation and hotel information will become available online at <http://seafwa2006.org/>.

The fisheries session will include: 1) Oral presentations of peer-reviewed manuscripts to be published in the Southeastern Proceedings; 2) Oral presentations of unpublished studies (limited to space available on the program); and 3) Posters. Manuscripts on marine, estuarine, and freshwater fisheries topics, including but not limited to, management, research, and culture are encouraged. Case histories are particularly encouraged. Poster abstract submissions must be submitted to Jeff Trollinger, VDGIF, 4010 West Broad Street, Richmond, VA 23230; (804)367-8747, Jeff.Trollinger@dgif.virginia.gov. Poster size cannot exceed 4' x 8'. Students: Indicate if you wish to be considered for best student poster award.

Our conference theme, Wildlife Management in the Next New World, was designed to focus the spotlight on the many struggles that natural resources managers have trying to balance conflicting demands on wildlife resources. Today, people and wildlife struggle to live in harmony. In keeping with this theme we would like to extend a special invitation for papers, posters, and workshops that discuss fishery management issues in relation to increasing demand on aquatic resources.

The deadline for submitting manuscripts is April 28, 2006. Manuscripts must follow SEAFWA instructions to authors guidelines, available in past issues of the annual proceedings, at the Virginia SEAFWA 2006 website (<http://seafwa2006.org/>), or by contacting the Fisheries Associate Editor (Dr. John Galvez) or Fisheries Program Chair (Dan Michaelson). Please submit four hard copies of your manuscript to the Fisheries Associate Editor. Submissions must include the title, author(s) names, work address and telephone number, and e-mail address of the contact author.

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AQUAVET® I -- COURSE ANNOUNCEMENT

AQUAVET® I -- An Introduction to Aquatic Veterinary Medicine will be offered by AQUAVET® in 2006. The course is designed for veterinary students and veterinarians who have an interest in applying their veterinary training to aquatic animals. The course will be presented at the Marine Biological Laboratory in Woods Hole, Massachusetts. The course dates are May 14 – June 10, 2006. The combined tuition, room, and board fee for the 4 week course has been set at \$1,600 for full time veterinary students, and at \$2,800 for veterinarians. Through the generosity of a program benefactor, a \$200 scholarship will be applied to partially off set the fee for all full time veterinary students resulting in a net tuition of \$1,400 for such accepted full time veterinary students this year.

Detailed information about the course is available on our web site at <http://www.aquavet.info>.

Applications for admission will be due on January 13, 2006 and may be obtained by accessing the program web site from which the application form may be downloaded for completion and submission by mail. On line applications will not be acceptable

AQUAVET® II -- COURSE ANNOUNCEMENT

AQUAVET® II -- Comparative Pathology of Aquatic Animals will be offered by AQUAVET® in 2006. This course will be oriented toward the pathology of vertebrates and invertebrates: commonly used as laboratory animals; encountered in display aquaria; and of importance in aquaculture enterprises. Representative species from each category will serve to demonstrate features of commonly observed diseases. The course is designed for veterinary students and veterinarians who have participated in AQUAVET® I or have had comparable experiences in aquatic animal medicine and pathology.

The course will be presented at the Marine Biological Laboratory in Woods Hole, Massachusetts. The course dates are May 14 - May 27, 2006. The combined tuition, room, and board fee for the 2 week course has been set at \$900 for full time veterinary students and at \$1,500 for veterinarians.

Detailed information about the course is available on our web site at <http://www.aquavet.info>.

Applications for admission will be due on January 13, 2006 and may be obtained by accessing the program web site from which the application form may be downloaded for completion and submission by mail. On line applications will not be acceptable.

AQUAVET[®] Summer Research Experience

In addition, we anticipate a limited number of summer research opportunities during an 8-10 week period following the course. Students selected as AQUAVET[®] Summer Research Fellows are not required to pay tuition or room and board fees for the 8-10 weeks of the research program itself. In addition, research students will receive a stipend of \$1,050 for the research period. At least one Fellowship will be restricted to aquaculture related projects.

Diseases of Warmwater Fish Course

June 5-16, 2006

University of Florida

College of Veterinary Medicine and Institute of Food and Agricultural Sciences (IFAS)

Department of Fisheries and Aquatic Sciences

The Diseases of Warmwater Fish course will be held in Ruskin and St. Augustine, Florida. It is an intensive two-week class designed to provide instruction in the methodology of diagnosis and treatment of parasitic, bacterial, viral, nutritional and environmental diseases of warmwater food fish and aquarium species. The course is open to students, veterinarians, fisheries biologists, aquaculturists and professional aquarists.

For specific details and online registration go to <http://www.conference.ifas.ufl.edu/ame/wwf/index.html>.

For additional information contact:

Shelby Sowder, Conference Coordinator

Office of Conferences and Institutes (OCI)

University of Florida Leadership and Education Foundation, Inc. (UFLEF)

Institute of Food and Agricultural Sciences (IFAS)

PO Box 110750

Building 639, Mowry Road

Gainesville, FL 32611-0750

PHONE: 352-392-5930 / FAX 352-392-9734

EMAIL: msowder@ufl.edu

Website: <http://conference.ifas.ufl.edu/>

Request For Issues of The Progressive Fish-Culturist:

AFS is seeking back issues of The Progressive Fish-Culturist (PFC) journal for digitization and inclusion in the AFS Fisheries InfoBase. Fisheries InfoBase currently provides online access to the full-text PDF versions of 1872-2000 articles appearing in AFS journals. InfoBase also now contains articles from PFC issues back to 1984, but in order to complete the coverage, we need the following issues of PFC:

1968 - issue 2

1954 - issue 4
1953 - issue 2
1951 - all issues
1950 - all issues
1949 - issues 1, 3, & 4
1947 - issues 1, 2, & 3
1946-1934 - all issues

Because the journals will be cut to facilitate scanning, we cannot return any journals. Donators of journals will receive an itemized valuation from AFS for tax deduction purposes. Contact AFS Publications Director Aaron Lerner (alerner@fisheries.org)

New Aquaculture Titles Now Published:

Aquaculture Biosecurity: Prevention, Control and Eradication of Aquatic Animal Disease

By David Scarfe, Cheng-Sheng Lee & Patricia O'Bryen

Published 20th February 2006 / 196 Pages / ISBN: 0813805392 / ISBN13: 9780813805399 / Hardback / £69.50 / US\$124.99 / AU\$306.00

For more information or to buy this book visit:

<http://www.blackwellpublishing.com/book.asp?ref=0813805392&site=1>

Published in Cooperation with [THE WORLD AQUACULTURE SOCIETY](#).

Aquaculture loses millions of dollars in revenue annually due to aquatic animal diseases. Disease outbreaks continue to threaten profitable and viable aquaculture operations throughout the world. As a result, aquaculture biosecurity programs that address aquatic animal pathogens and diseases have become an important focus for the aquaculture industry. Aquaculture Biosecurity: Prevention, Control, and Eradication of Aquatic Animal Disease provides valuable information that will increase success in combating infectious aquatic disease.

Key representatives of international, regional, and national organizations presented their views on this important issue as part of a special session at the 2004 World Aquaculture Society Annual Conference. The chapters of this book cover a wealth of experience from the varied perspectives of these experts on biosecurity, policies, and measures to take the offensive against the spread of diseases in aquatic animals.

With contributions from renowned international experts, covering approaches to biosecurity policies and measures currently practiced, Aquaculture Biosecurity: Prevention, Control, and Eradication of Aquatic Animal Disease is a vital reference for all those concerned about protecting aquaculture from impacts of aquatic animal disease.

Aquaculture Marketing Handbook First Edition

By Carole Engle & Kwamena Quagraine

Publishing 29th March 2006 / 288 Pages / ISBN: 0813816041 / ISBN13: 9780813816043 / Paperback / £59.50 / US\$99.99 / AU\$229.00

For more information or to buy this book visit: www.blackwellpublishing.com/0813816041.

Markets, marketing, and trade have become ever more important to growing aquaculture industries worldwide. The diversity and idiosyncrasies of the aquaculture and seafood markets call for understanding information that is unique to these markets. Presenting fundamental principles of marketing and economics from a user-friendly, how-to perspective The Aquaculture Marketing Handbook will provide the reader with the tools necessary to evaluate and adapt to changing market conditions.

The Aquaculture Marketing Handbook provides the reader with a broad base of information regarding aquaculture economics, markets, and marketing. In addition, this volume also contains an extensive annotated bibliography and webliography that provide descriptions to key additional sources of information.

Written by authors with vast international aquaculture marketing experience, The Aquaculture Marketing Handbook is an important introduction to aquaculture marketing for those interested in aquaculture and those new to the professional field. The body of knowledge presented in this book will also make it a valuable reference for even the most experienced aquaculture professional.

Keep informed about our new and forthcoming books... Sign up for our email table of contents alerting service at: www.blackwellpublishing.com/ealerts

FHS PARTICIPATION IN THE USAHA / AAVLD ANNUAL MEETINGS:

Scott LaPatra

As you know, the Fish Health Section (FHS) has committed to becoming more involved in other aquatic animal health forums. For the last eight years I attended and participated in the United States Animal Health Association (USAHA) and the American Association of Veterinary Laboratory Diagnosticians (AAVLD) annual meeting and represented the FHS. Last year the meeting was held in San Diego, California and this year it was held in Hershey, Pennsylvania. For background information, the USAHA is the most well established animal health organization that has approximately 1,400 members and works with a variety animal health entities both nationally, including the United States Department of Agriculture Animal Plant Health Inspection Service (USDA/APHIS), and internationally. The purpose of the AAVLD, which works closely with the USAHA, is the dissemination of information relating to the diagnosis of animal disease, the coordination of the diagnostic activities of regulatory, research and service laboratories, the establishment of accepted guides for the improvement of diagnostic laboratory organizations relative to facilities, equipment and personal qualifications.

The FHS objectives, interests and goals regarding animal health are very similar to the USAHA and AAVLD. One of the reasons we were in attendance was to offer our expertise and established programs in aquatic animal health and maintain visibility with other groups also interested in aquatic animal medicine. This year the USAHA and the AAVLD Aquaculture Committees met jointly and were chaired by Dr. Tom Bladwin representing the AAVLD and myself representing USAHA. As in past years, I updated the committee about the Sections activities. Additionally, the committee has been very successful at passing resolutions which are then forwarded to the Executive Committee of the USAHA. Last year two resolutions were approved and submitted to USDA/APHIS for comment. The minutes from the

recent Aquaculture Committee meeting are included below. If you have any questions or need for additional information, please don't hesitate to contact me or one of the FHS Executive Committee members.

USAHA / AAVLD Committee on Aquaculture

Meeting Minutes

The Committee on Aquaculture met on November 7, 2005 from 12:30-5:30 p.m.
Hershey, Pennsylvania

1. Scott LaPatra called the meeting to order and each attendee introduced themselves.
2. Randy MacMillan provided an update from the National Aquaculture Association. Key points included:
 - a. Production costs are lower in foreign countries than in the US, which is fueling importation of aquaculture products.
 - b. Animal welfare issues, some sponsored by animal rights organizations, increase US production costs. Research as to whether or not fish or invertebrates feel pain and to what extent is considered critical.
 - c. The National Aquaculture Association supports a National Aquatic Animal Health Plan but is concerned about costs.
 - d. The association is concerned about inaccurate reports from the press regarding wholesomeness of farmed fish, and encourages public education as a countermeasure.
 - e. The association is planning for the World Aquaculture Association meeting where vaccination of fish will be a major topic. The attraction of commercial vaccine-producing corporations is a major goal.
 - f. The association is concerned about nuisance aquatic animal species and is trying to get the Fish and Wildlife Service to pay more attention to this area.
 - g. The association is opposed to the national identification system proposed by APHIS. Association members see no market or fish health advantages.
3. David Morris provided an update from the National Animal Identification Program.
 - a. The objective is to establish an information system to support disease control.
 - b. Such a system includes the ability to trace animals back to sites of origin and forward to sites of sale in an effort to determine contact animals.
 - c. Components of the identification program include premise identification, animal identification and traceability.
 - d. Specific technologies have not been adopted yet and APHIS is hoping industries will adopt what works best.
 - e. The program is voluntary rather than mandatory; no funding exists as yet to support a mandatory program.
 - f. APHIS is considering whether the program should be privatized.
 - g. Implementation: premise identification is ongoing, and APHIS has received \$33 million to support this effort.
 - h. An aquaculture information group has been formed and met twice. A primary consideration is will such an identification system be beneficial? Industry representatives are uniformly opposed, as each fish is worth only \$0.15 - \$0.18. Hence, industry representative are concerned how costs can be justified.
 - i. Aquaculture facilities may not need to use every component of the identification system, and perhaps could model after poultry.

4. Jill Rolland provided an update from APHIS
 - a. The infectious salmon anemia program received Consumer Commodity Corporation (CCC) funding, and is now in management mode. Indemnity was provided for years one and two of the control program, but has ended subsequently.
 - b. Spring viremia of carp was detected in 2003 and 2004. Affected facilities were depopulated and cleaned. Indemnity was provided. Spring viremia of carp has been detected in wild carp in Wisconsin.

5. John Clifford provided an update on the National Aquatic Animal Health Plan
 - a. The plan is transparent, based on science and seeks stakeholder input.
 - b. Working groups include:
 - i. Health professional roles and certification
 - ii. Pathogens and surveillance
 - iii. Laboratory methodology
 - iv. Species-specific disease programs
 - v. State resource agencies
 - vi. Research
 - vii. Education
 - c. Next steps are:
 - i. Continue to convene working groups
 - ii. Continue to draft chapters
 - iii. Strive for completion in spring 2007
 - d. Representatives from aquaculture companies stressed that this committee should not endorse a plan that creates economic hardship. Aquaculture companies support APHIS in theory, but practicality argues against programs that produce no profit.

6. David Scarfe reported on activities of the committee on Aquatic Veterinary Medicine from AVMA
 - a. Animal welfare is a large issue for AVMA. How does the AVMA counter false information?
 - i. Are aquatic invertebrates and fish sentient?
 - ii. PETA has reactivated their effort to fight fishing
 - b. Limited biologic and therapeutic agents available in aquaculture are of concern. Indexing of drugs is now happening and a publication on the use of medicated feeds is under development.
 - i. Large amounts of pharmaceuticals are on pet store shelves, some illegally.
 - ii. Pamphlets on the judicious use of antimicrobials in aquatic species have been prepared.
 - c. The Canadian National Aquatic Animal Health programs are well-funded and rapidly moving, in contrast to similar programs in the US.
 - d. An online, searchable database is available to locate veterinarians and diagnostic laboratories that support aquaculture.

7. Scott LaPatra reported on activities of the American Fisheries Society, Fish Health Section (AFS/FHS)
 - a. The AFS/FHS presented and co-sponsored CE with the AVMA at the Eastern, Western and National Fish Health Workshop meetings in April, June, and July 2005, respectively, to help veterinarians and other aquatic animal health professionals meet their CE requirements. Sessions sponsored included “spring viremia of carp,” “applying risk assessment principles to fish health situations,” and “current topics in aquatic toxicology.” The importance of maintaining partnerships and collaboration with the

AVMA and other animal health organizations is critical to the harmonious and efficient advancement of the field.

- b. The 5th International Symposium on Aquatic Animal Health will be held on September 2-6, 2006 in San Francisco, California.
8. Myron Kebus provided an update on the Wisconsin fish health medicine certification program. This is a continuing education program to support and advance aquaculture for veterinarians and is sponsored by the Wisconsin Department of Agriculture, in conjunction with Mississippi State University
 - a. Program consists of five modules
 - i. Introduction
 - ii. Risk management and biosecurity
 - iii. Water quality
 - iv. Fish health inspection
 - v. Veterinary health assessments
 - b. Those involved include fish farmers, veterinarians, state officials and members of USDA
 9. Scott LaPatra led a discussion on old business. Two resolutions were submitted and approved last year that APHIS responded to.
 - a. Resolution number 12 entitled “adequate long-term financial support for the state-federal infectious salmon anemia program and indemnification in the northeastern United States” stated concerns over the continued funding of the infectious salmon anemia program. APHIS indicated that funding is ongoing through fiscal year 2006, but Congress has not authorized funds beyond that time.
 - b. Resolution number 14 entitled “risk assessment in aquatic animal health” stated that information gaps existed that would not allow credible risk assessments to be performed and that steps should be taken to fill those gaps. APHIS indicated that at the present time they were not in the position to conduct gap analyses or risk assessments for pathogens of economic significance to the farmed food fish industry.
 10. Cynthia Johnson discussed an APHIS-funded program on forecasting disease emergence.
 - a. Factors behind disease emergence include health systems, climate and environment, industry and economics, social and cultural considerations, political issues such as war, and agent/host and vector factors.
 - b. Aquaculture was selected because it is rapidly growing, has had recent outbreaks in the US, and participants desire to increase their knowledge in aquatic animal medicine
 - c. Have developed a disease emergence profile, including a score for emergence potential
 - d. Future steps include internal and external reviews and plans for future modeling
 11. Scott LaPatra conducted new business.
 - a. A resolution from the National Aquaculture Association was presented by Randy MacMillan. The resolution read: “The United States Animal Health Association (USAHA) supports the domestic aquaculture industry's request to the United States Department of Agriculture – Animal and Plant Health Inspection Service for exemption from the NAIS.” The merits of the resolution were discussed – especially the economic burden such a system may impose on aquaculture producers. The resolution was ultimately tabled.
 - b. Kevin Snekvick replaced Tom Baldwin as the committee co-chair for AAVLD.

Scott LaPatra adjourned the meeting.

Some decalcification procedures inhibit acid fast staining of *Mycobacterium* spp. in tissue sections

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Mycobacteriosis is a common disease of fishes, and thus is often identified in aquatic animal laboratories. *Mycobacterium* spp. are often very slow growing and difficult to culture compared to many other bacteria. Diagnosis, therefore, is often made by histology. Preliminary diagnosis is achieved by observation of numerous granulomas in which other microorganisms are not seen in the lesions, and is usually confirmed by observation of acid-fast bacteria in the lesions. However, it is well recognized that it is often difficult to visualize mycobacteria in acid fast stained tissues in which the presence of the infection is confirmed by either culture or molecular methods. A common explanation for the absence of acid-fast bacteria in granulomas is that relatively few mycobacteria are present in some lesions, and 1×10^4 bacteria/g are required before mycobacteria are visualized in histological sections (Canale et al. 2000). Gauthier et al. (2003) reported that striped bass experimentally infected with *M. marinum* or *M. shottsii* often exhibited granulomas in which acid-fast bacilli were not visualized in tissues, while they isolated large numbers of mycobacteria from these lesions. In field surveys, Knibb et al. (1993) showed that many fish are infected with *M. marinum* in which the bacteria were not visualized in acid-fast stained sections, and Rhodes et al (2004) and Kattarri et al. (2006) isolated mycobacteria from the spleens of many wild striped bass that lacked either macroscopic or histological changes consistent with mycobacteriosis. All of these studies demonstrate that, with *Mycobacterium* spp., presence of lesions, presence of acid fast bacteria in lesions, culture, and true occurrence of infection are often not well correlated.

We recently conducted experimental transmission studies with various isolates of *Mycobacterium* spp. from zebrafish (e.g., *M. marinum*, *M. peregrinum*, *M. chelonae* and *M. abscessus*). We were frequently unable to observe

acid-fast bacteria histologically in fish with chronic inflammatory lesions, including those in which we isolated large numbers of mycobacteria (i.e., *M. marinum*) in culture. Our procedure for processing zebrafish for histology included preservation of tissues in Dietrich's fixative, and decalcification of whole fish in Cal-Ex (Fisher Scientific, Baltimore, MD), which contains 1.35 N HCl. Certain decalcification processes containing HCl inhibit acid-fast staining of mycobacteria, and thus we suspected that our decalcification procedure inhibited our ability to visualize acid-fast bacteria in the fish with severe mycobacteriosis in this experiment. In addition, one of us (V.O.) routinely uses Bouin's fixative, a common preservative in fish histopathology. He often has found that acid fast bacteria are not detected in tissues with numerous granulomas that were preserved in this fixative, including those in which mycobacteria were cultured from the same tissue.

We conducted the following experiment to elucidate the influences of types of preservatives and decalcification processes on detection of acid-fast bacteria (i.e., mycobacteria) in infected tissues. Two spleens from hybrid striped bass with gross signs of mycobacteriosis were each divided into thirds, then preserved in either Dietrich's, Bouin's, or 10% neutral buffered formalin. Tissues were preserved for 48 h, then transferred to 30% ethanol. Each piece of spleen tissue was then divided into thirds, and treated as follows: no decalcification, decalcification in Cal-Ex for 48 h, or decalcification in 5% trichloroacetic acid (TCA) for 24 h. The latter has been our general procedure for processing zebrafish in the Diagnostic Service of the NIH Zebrafish International Research Center (http://www.neuro.uoregon.edu/ionmain/Fish_Diseases.html). Tissues were then processed for histology, sectioned, and then stained with either Kinyoun's acid fast or acid fast for lipofuchsin (Luna 1968) acid fast at the OSU Veterinary Diagnostic Clinic, or stained with Ziehl-Neelsen at the University of Oregon (<http://zfin.org/zirc/disMan/diseaseManual.php>).

Both spleens were replete with granulomas. Acid fast bacteria were observed in almost most of the granulomas in tissues fixed in all three fixatives with no decalcification using with both staining protocols (Fig 1A andB). In contrast, no acid fast bacteria were detected in tissues treated with Cal-Ex. Acid-fast bacilli were readily detected in granulomas in tissues treated with TCA, but bacteria with positive staining were reduced in numbers compared to tissues that had not undergone decalcification. The acid fast stain for lipofuscin was somewhat superior to Kinyoun's in our hands, as the former showed very little non-specific background staining. Nevertheless, acid-fast bacilli could easily be differentiated from amorphous, red staining material in granulomas stained with Kinyoun's (Fig 1A) or Ziehl-Neelsen. We also found that in thicker sections (e.g., 7 μm) acid fast bacilli stained more brilliant red than in those cut at 4 or 5 μm .

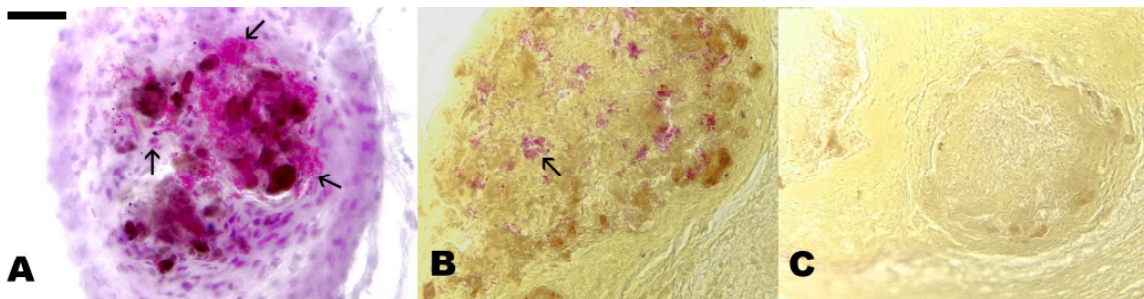
Many laboratories decalcify small, whole fish so that they can be embedded and sectioned intact. Our study demonstrates dramatic differences in acid fast staining imparted by some decalcification procedures, blocking or

diminishing positive staining of mycobacteria and hindering visual detection. Therefore, caution should be exercised when declaring a tissue section free of acid fast bacteria, particularly when that tissue has undergone decalcification. We plan to conduct further investigations of the impact of processing methods on acid fast staining in fish tissues, including studying the effects of other decalcifying solutions, such as Cal-Ex II (Fisher Scientific) which contains formic acid. In addition, we plan to investigate the effects of long term storage of tissues in acidic fixatives, such as Bouin's and Dietrich's, as this is a rather common practice in some laboratories.

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Fig. 1. Spleen of hybrid striped bass preserved in 10% neutral buffered formalin. Bar = 20 μ m. A. Kinyoun's acid fast stain, no decalcification. Arrows = acid-fast bacilli. B. Acid fast for lipofuscin, no decalcification. C. Acid fast for lipofuscin, decalcified with Cal-Ex for 48 h.



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The *Fish Health Newsletter* is an electronic publication of the Fish Health Section of the American Fisheries Society and is available for downloading in Adobe pdf file format. Submissions on any topic of interest to fish health specialists and preliminary case reports are encouraged with the understanding the material is not peer-reviewed. Abstracts submitted to the *Journal of Aquatic Animal Health* are also encouraged. Submissions must be formatted in Microsoft Word, WordPerfect, or Rich Text Format, and can be sent by electronic mail or via 3.5” floppy disk to the editor’s address below. **Graphics files should be sent separately in jpeg format.**

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