# Fish Health Newsletter

Fish Health Section/American Fisheries Society

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## PRESIDENT'S REPORT

On behalf of the members of the Fish Health Section I would like to extend our sincere appreciation and thanks to the organizers of the 1999 AFS/FHS Annual Meeting and Western Fish Disease Workshop in Twin Falls, Idaho. The meeting, organized by Keith Johnson, Scott La Patra, Doug Ramsey, and Gary Fornshell, was an overwhelming success. Contributing to the success was the workshop *"Judicious Use of Antimicrobial Compounds in Aquaculture"* organized by Joy Evered. This timely workshop was attend by nearly 100 participants. Our thanks to Joy for all her efforts and hard work. As you know our original intention was to hold the 1999 FHS meeting in conjunction with the AFS annual meeting in Charlotte, NC. When these plans did not materialize the organizers of the Western Fish Disease Workshop included the annual meeting in their plans. Thanks again to everyone for your extra efforts on behalf of the section.

A number of other members have also contributed to the FHS over the past year. Hopefully by now, most of you have visited our new website designed by Chris Wilson. In addition to acting as the formatting editor for the FHS newsletter, Chris put the section on the electronic global map. Our sincere thanks Chris, you can check out his handiwork at www.fisheries.org/fhs. Pete Taylor was also busy designing an informational membership brochure for the section. Pete arranged for membership advertising in the European Association of Fish Pathologists Bulletin and in the journal of the Japanese Society of Fish Pathologists. Pete is also designing a portable display for travel to other section and society conferences. Thanks to Pete for all his efforts. Paul Reno and the members of the Technical Standards Committee are in the process of revising the Blue Book, and have or will receive updates from Ron Pascho (BKD), Jerri Bartholomew (*Ceratomyxa shasta*), John Fryer and Marcia House (*Piscirickettsia salmonis*), Ron Hedrick (viral diseases of sturgeon), and Deb Bouchard and Bill Keleher (ISA). Emmett Shotts is undertaking the revision of the bacterial flow scheme, and Ted Meyers will add to the chapter on BKD. The section is indebted to those members who volunteer to provide all of us with the most current scientific information.

As the incoming president I want to thank all of our members, including committee members and the editors of JAAH who have over the year helped to maintain the vitality of FHS. As a section we have old issues and new challenges to address, and with the continuing support of our members I look forward to a productive term and future success as a AFS section.

Beverly Dixon, President

# POTENTIAL INFECTIOUS PANCREATIC NECROSIS VIRUS ISOLATE DISCOVERED IN INDIANA'S PRIZED SKAMANIA STEELHEAD TROUT AND RAINBOW TROUT

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In late October, 1998, in order to comply with the Great Lake Fish Health Committee=s control policy and model program, Mixsawbah State Fish Hatchery in Walkerton, IN, of the Indiana=s Department of Natural Resources, Fish and Wildlife Division, submitted tissue samples from winter run steelhead trout for annual fish health inspection evaluation to the Animal Disease Diagnostic Laboratory (ADDL), Purdue University, at West Lafayette, IN. The ADDL is fully accredited by the American Association of Veterinary Laboratory Diagnosticians (AAVLD). Viruses isolated from four of twelve 5 fish kidney/spleen pools were identified as Infectious Pancreatic Necrosis Virus (IPNV) or an antigenically similar Aaquatic birnavirus@[1] which was cross-reactive with polyclonal IPNV anti-sera using fluorescent antibody (FA) techniques.

Subsequently, a sample of this lot of fish were euthanized, necropsied and examined histologically by American College of Veterinary Pathologists at the ADDL. The results of these tests were equivocal for the diagnosis of Infectious Pancreatic Necrosis Virus infection. However, kidney samples collected at necropsy and submitted for VI and FA techniques were positive for IPNV or an antigenically similar Aaquatic birnavirus@ which was cross-reactive with polyclonal IPNV anti-sera utilizing the same previous mentioned techniques for these fish.

In early December, summer run skamania steelhead trout from this same facility also had six of twelve 5 fish kidney/spleen pools which tested positive for Infectious Pancreatic Necrosis Virus or an antigenically similar Aaquatic birnavirus@ which was cross-reactive with polyclonal IPNV anti-sera utilizing the same previously mentioned techniques. These fish had previously tested negative during a routine annual fish health inspection (August, 1998) using the same methods.

Adult broodstock of ALondon strain@ rainbow trout being kept at Curtis Creek Trout Rearing Station near Howe, IN for spawning during the winter months were sampled for their annual fish health inspection in December, 1998. Four of fourteen 5 fish ovarian fluid pools were positive for Infectious Pancreatic Necrosis Virus or an antigenically similar Aaquatic birnavirus@ which was cross-reactive with polyclonal IPNV anti-sera utilizing the same previously mentioned techniques.

Adult steelhead broodstock were sampled throughout the spawning season (January and February, 1999) at Bodine State Fish Hatchery in Mishawaka, IN. A total of seven out of forty-two 5 fish kidney/spleen pools (representing 210 fish from a total of 338 females that were spawned) were positive for Infectious Pancreatic Necrosis Virus or an antigenically similar Aaquatic birnavirus@ which is cross-reactive with polyclonal IPNV anti-sera utilizing the same previously mentioned techniques. However, to date, hatched offspring from both the steelhead from Bodine State Fish Hatchery and the rainbow trout from Curtis Creek Trout Rearing Station have not tested positive for the presence of this pathogen. Additionally, no increased morbidities or mortalities or lesions indicative of IPN disease have been observed in any of the hatcheries where AIPN positive@ fish have been identified.

Based upon the importance of IPNV being listed as a restrictive disease agent, and the potential ramifications of large numbers of production fish which may need to be destroyed due to a lack of alternative stocking in non-Great Lakes watersheds and basins, coupled with the wording that Aevery effort should be made not to release these fish into waters of the

Great Lakes basin@ as stated in the model program[2], diagnostic assistance was requested from the Washington Animal Disease Laboratory in Pullman, WA (which is also an AAVLD fully-accredited laboratory) to confirm the identity of this viral isolate. This laboratory was able to confirm each of these three initial IPNV isolates using very similar laboratory methods as those used in the virology laboratory of the ADDL. Subsequently, the electron microscopy laboratory of the ADDL has confirmed this isolate as a birnavirus based upon its characteristic size and ultrastructural morphology.

A management decision was made to destroy the entire year's stock of approximately 110,000 of the winter run steelhead trout in order to prevent violation of the control policy and model program of the Great Lakes Fish Health Committee. Factors involved in this decision-making process included the short time period prior to stocking of these fish and the potential jeopardizing of good culture and husbandry practices for arriving chinook and coho salmon production fish in order to minimize exposure of this viral agent to other salmon stocks.

These issues were discussed at great length by the Great Lakes Fish Health Committee at its annual meeting in March, 1999 in Winnipeg, Canada. Several key questions were posed to this committee as asked by mutual agreement of agency fishery chiefs in Illinois, Indiana, Wisconsin and Michigan. The outcome of the decision-making process at this meeting indicated that more research regarding the potential pathogenicity of this isolate needed to be done in order for proper risk assessment modeling procedures to be initiated to ensure the best possible outcome of these AIPN positive@ fish. It was also noted that the control policy and model program of this committee should be revised as soon as possible. Much discussion centered around the issue of disease versus pathogen detection.

Beginning in late 1999 and early 2000, veterinary researchers and scientists in the School of Veterinary Medicine of Purdue University and at the Animal Disease Diagnostic Laboratory of Purdue University, including veterinary pathologists and virologists as well as support staff trained in aquaculture species will conduct research to try to focus on the following issues regarding this isolate:

? Serotyping and its significance
? Pathogenicity as determined by experimental infection of healthy fish
? Virulence factors associated with disease propagation such as age
? susceptibility, water temperatures, etc.
? Improvement of current diagnostic testing procedures for this agent

Once these issues are addressed, models for risk assessment can be more completely developed to understand the significance of this isolate. This will allow fishery chiefs and hatchery managers within the Great Lakes basin to make educated, informed and science-based decisions regarding these current findings rather than having to destroy hundreds of thousands of fish in order to be in compliance with the current control policy and model program of the Great Lakes Fish Health Committee due to the presence of this isolate within seemingly otherwise healthy fish.

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2.) J. Gnath, ed. 1993. Great Lakes Fish Disease Control Policy and Model Program. Protocol to Minimize the Risk of Introducing Emergency Disease Agents with Importation of Salmonid Fishes from Enzootic Areas. Special Publication 93-1. Great Lakes Fishery Commission. Ann Arbor. pg. 23.

# APPLICABILITY OF A POLYMERASE CHAIN REACTION FOR DETECTION OF *CERATOMYXA SHASTA* IN FIELD DIAGNOSTICS AND SURVEILLANCE

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Bartholomew et al. (1997) identified *Manayunkia speciosa*, a freshwater polychaete, as the alternate host in the life cycle of *Ceratomyxa shasta* through a series of laboratory transmission experiments confirmed with polymerase chain reaction (PCR) techniques. From this work, Palenzuela et al. (In press) developed a single round PCR diagnostic assay for *C. shasta* and described an inexpensive DNA preparation procedure which allows simultaneous processing of large numbers of samples without the use of hazardous traditional DNA extraction methods. Here, we discuss a small scale trial testing the applicability of the *C. shasta* PCR as a field diagnostic and surveillance tool. Replicate samples were assayed with the PCR at two laboratories and results were compared with standard wet mount preparations viewed with bright field microscopy. Pooled intestinal tissue matrices were also tested with the PCR for its potential in screening large numbers of fish.

Lower intestine samples (6 - 12 cm in length) were collected from 19 adult spring chinook salmon (brood year 1997) during spawning operations at Dworshak National Fish Hatchery, Ahsahka, Idaho. From each intestine sample, replicate sub-samples (25 - 50 mg cross sections) were aseptically prepared for assay with the PCR (Figure 1). Replicate sample sets for PCR were assayed at Dworshak Fish Health Center (FHC), Ahsahka, Idaho and the Center for Salmon Disease Research (CSDR), Oregon State University, Corvallis, Oregon. The Cs1 and Cs3 primer set was used in the PCR reaction mixture resulting in DNA amplicons of 638 bp (Palenzuela et al. In press). Negative control tissue was taken from the gut of juvenile spring chinook salmon (Dworshak NFH) never exposed to *C. shasta*. Absence of infection in negative control tissue was verified with light microscopy and PCR. Positive control tissue was taken from the lower intestine of adult chinook salmon with gross ceratomyxosis. At Dworshak FHC, wet mounts were also prepared from each sample and a minimum of 50 fields was examined with bright field microscopy at 400H magnification. A presumptive diagnosis was made when multicellular myxosporean spores consistent with the size and shape of *C. shasta* were observed (Hendrickson and Bartholomew 1994). Samples presumed positive for *C. shasta* were placed into, admittedly subjective, relative infection levels based on the mean number of spores observed per field. Samples having a mean #3 spores/field were considered low level and those with >3 spores/field were considered high level infections.

Spores of *C. shasta* were observed with microscopy in 63.2% (12/19) of the samples (Table 1). Of the 12 samples with observable spores, 5 were described as low level and 7 as high level infections. When replicate sets of sub-samples were assayed with PCR, 95% (18/19) were positive at the CSDR laboratory and 100% were positive at Dworshak FHC (Table 1). The PCR amplified DNA of *C. shasta* in all samples that were presumed negative by standard light microscopy techniques. Discrepancies in results of the PCR between laboratories occurred in only one sample (D7), which was negative at CSDR but positive at Dworshak FHC. No spores were found in sample D7 during examination of a wet mount preparation. At Dworshak FHC, PCR amplicons visualized

| Sample number | Relative level of infection using light microscopy | Results of assay by PCR | |
|---|---|---|---|
| | | Dworshak FHC | CSDR |
| **D1** | High | Positive | Positive |
| **D2** | High | Positive | Positive |
| **D3** | High | Positive | Positive |
| **D4** | Low | Positive | Weak positive |
| **D5** | Not detected | Positive | Weak positive |
| **D6** | Not detected | Positive | Positive |
| **D7** | Not detected | Weak positive | Negative |
| **K1** | Not detected | Positive | Weak positive |
| **K2** | Not detected | Positive | Positive |
| **K3** | High | Positive | Positive |
| **K4** | Not detected | Positive | Weak positive |
| **K5** | Low | Positive | Positive |
| **K6** | Not detected | Positive | Weak positive |
| **K7** | Low | Positive | Weak positive |
| **K8** | High | Positive | Positive |
| **K9** | High | Positive | Positive |
| **K10** | Low | Positive | Positive |
| **K11** | High | Positive | Positive |
| **K12** | Low | Positive | Positive |

**Table 1.! Relative infection level of *C. shasta* determined by microscopic examination of intestinal wet mount preparations from 19 adult chinook salmon, and comparison of PRC assay between two laboratories.**

in ethidium bromide-stained agarose gels were of similar intensity regardless of relative infection level observed with microscopy, except sample D7 which was of slightly lower intensity. At CSDR, amplicons from 6 samples (D4, D5, K1, K4, K6, and K7) had lower intensity bands compared to other samples (gel not shown) and were described as comparatively weak positives (Table 1). All samples described as weak PCR positive were either negative (no spores detected) or had low level infections by examination of wet mount preparations. However, five other samples (D6, K2, K5, K10, and K12) with either no observable spores or low level infections had sufficient DNA template to produce highly visible bands in stained gels.

In testing the PCR to detect *C. shasta* in pooled tissue matrices, we combined known positive tissue (intestine sample D3) with known negative tissue to form the commonly used field standard 5 fish pool (Table 2). Negative control tissue was taken from the gut of juvenile spring chinook salmon (Dworshak NFH) never exposed to *C. shasta*. PCR protocol for assay of 5 fish pools was essentially the same as that used for single fish samples except the total weight of samples was about 150 - 200 mg for pooled

*(Continued on page 6)*

*(Continued from page 5)*

| Tissue pool number | Pooled tissue ratio | Results of PCR |
|---|---|---|
| P0 | 0:5 | Negative |
| P1 | 1:4 | Positive |
| P2 | 2:3 | Positive |
| P3 | 3:2 | Positive |
| P4 | 4:1 | Positive |
| P5 | 5:0 | Positive |

**Table 2. ! Ratio of positive and negative control tissues used to formulate 5 fish pool matrices and results of assay for DNA of *C. shasta* with a single round PCR**

samples compared to 25 - 50 mg for single fish samples. Pooled samples were incubated at 37°C for 24 h in extraction buffer to ensure complete digestion of tissue.

The PCR successfully amplified DNA of *C. shasta* in all pooled tissue matrices that contained at least one section of infected tissue (Table 2). PCR amplicons visualized in ethidium bromide-stained agarose gels appeared equal in intensity regardless of the ratio of positive to negative tissue used (Figure 3). Incubation of tissue in the extraction buffer for 24 h had no apparent averse effect on recovery of *C. shasta* DNA and is recommended for complete digestion of samples.

In summary, the PCR diagnostic assay for ceratomyxosis produced consistent and reliable results for confirmation of observable infections, but was especially useful in detection of low level infections and for early stages of infection when mature spore were not visible in standard wet mount preparations. Additionally, the PCR successfully amplified DNA of *C. shasta* in 5 fish pooled samples that contained infected tissue from one or more fish. Coupled with an inexpensive, rapid, and single tube DNA extraction process, the assay is a time-saving yet highly specific tool with utility in field diagnostics and surveillance applications. Results of this work, however, are not intended to replace more rigorous testing involved with assay standardization.

## References

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# AN HERPESVIRUS ASSOCIATED WITH MASS MORTALITY OF JUVENILE AND ADULT KOI *CYPRINUS CARPIO*

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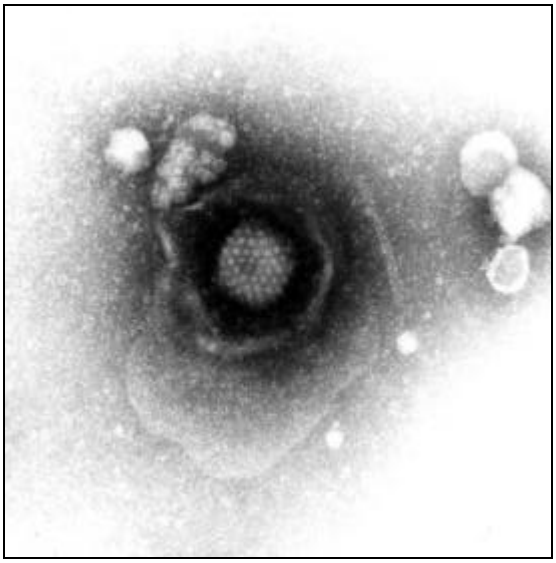
An herpesvirus was isolated from adult koi *Cyprinus carpio* suffering mass mortality in two outbreaks, one in the North Atlantic region of the U.S.A. and the second in Israel. The principal external signs of dying fish were pale and irregularly colored gills. There were few consistent internal signs in either outbreak. The most prominent microscopic lesions were found in the gills where hyperplasia and necrosis of the epithelium were severe. Interstitial nephritis, splenitis, and enteritis were also evident. Nuclear hypertrophy and intranuclear inclusions while not prominent, were present in affected tissues and among circulating leukocytes. Typical herpesvirus particles were evident in branchial epithelial cells, hepatocytes and among circulating leukocytes. Inoculations of the koi fin (KF-1) line with tissue extracts from the gill, and kidney/ spleen resulted in cytopathic effects characterized by severe vacuolation first detected after 7 days incubation at 20$^{o}$C.

Exposures of adult koi to the herpesvirus as propagated in KF-1 cells by bath or intraperitoneal injections resulted in 80 – 100 % mortality and the virus was re-isolated from the gill, kidney, liver, spleen, intestine and brain of dead fish. The viral agents from koi in Israel and the U.S.A. appear similar if not identical and both could be distinguished from *Herpesvirus cyprini* by indirect fluorescent antibody tests with rabbit anti-*H. cyprini* serum.

Other factors should be examined but we strongly suspect that this newly recognized koi herpesvirus (KHV) has the potential to be a significant cause of mortality among koi and presumably common carp.



**Negative stain of the herpesvirus isolated from koi suffering serious gill disease. The virus as propagated in KF-1 cells had a nucleocapsid diameter of 110 nm and an envelope of 230 nm.**

## YERSINIA RUCKERI IN PERU

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As part of an FAO project, 17 hatcheries in Perú were inspected during the period of October 1-27, 1998. The survey was carried out in the Departamento of Junín, located at an altitude of about 3.500 m, where there are over 40 hatcheries rearing rainbow trout to approximately 250 gm size. Hatcheries are supplied with water from rivers, lakes and springs which arise at 4800 m above sea level. Temperatures normally range between 9 - 16º C. Hatcheries are supplied with eggs from their own broodstocks in Perú and with eggs imported from the USA. In neither case eggs are disinfected with iodophors.

In nine of the seventeen inspected hatcheries, *Yersinia ruckeri* was detected. It is possible that the number of infected hatcheries could be higher since there is no control over the movement of fish between hatcheries in different areas. In addition, many rivers were stocked with rainbow trout fry suspected of being infected.

Fish showed the following signs: red mouth, ocular hemorrhage, anal hemorrhage, splenic enlargement, empty intestine with yellow mucus and swollen kidney. *Yersinia ruckeri* was isolated from the kidney of fish weighing between 10 - 30 gm at a fish health laboratory specially adapted for this survey in Huancayo (Peru). In Chile, the diagnosis was confirmed by immunoagglutination, where the bacterium was identified as *Yersinia ruckeri*, serotype I. According to the signs exhibited by the infected fish, *Yersinia ruckeri* is suspected to have been in Peruvian waters for at least the last two years, as the same signs were observed a year ago.

Mortality in the cases was not high and was easily controlled through oral treatment with 100 mg of active ingredient of oxytetracycline per kg of fish per day for 10 consecutive days.

Additional surveys are needed to determine the extent of Enteric Redmouth in Perú.

## JOINT SUBCOMMITTEE ON AQUACULTURE

The federal Joint Subcommittee on Aquaculture's (JSA) Working Group on Quality Assurance in Aquaculture Production has served as a national forum to address issues associated with new animal drug approvals, biologics licensing, producer quality assurance programs, international harmonization and much more since 1990. It offers an open national public-private sector forum to facilitate the exchange information, sharing of resources, and pursuit of resolutions to numerous issues of national and regional significance to the aquaculture industry. The Working Group is co-chaired by FDA-CVM and USDA-CSREES.One goal of the JSA is to expand public access to its publications and activities, including its associated Task Forces and Working Groups. With this intent a new website has been created that provides information on the goals, objectives, background, current position, international activities and progress reports of the National Coordinator for Aquaculture New Animal Drug Applications (Rosalie Schnick).For those interested in new animal drug approvals for aquaculture and related issues, you may wish to visit this new website under the JSA homepage at:http://ag.ansc.purdue.edu/aquanic/jsa/Aquadrugs.htm.

# AWARDS PRESENTED AT FISH HEALTH SECTION MEETING

The Sniezko Distinguished Service Award is presented to Dr. Robert Putz by Dr. R.J. Roberts

The 1999 S.F. Snieszko Distinguished Service Award, the highest award of the FHS presented to individuals to honor their outstanding career accomplishments in the field of fish health, was presented to Dr. Robert Putz at the annual meeting in Twin Falls, Idaho. Dr. Putz is currently the Director of the Conservation Fund, however his career has spanned nearly 40 years in fisheries and fish health. Dr. Putz began his career with the Fish and Wildlife service at the Eastern Fish Disease Laboratory at Leetown, WV. While at Leetown, Dr. Putz worked on whirling disease and *Ichthyophthirius*. Dr. Putz left Leetown after 10 years and 25 publications for government managerial positions including Branch Chief of Fish Husbandry; Chief, Division of Fish Culture Research; and Deputy Associate Director for Research. While in Washington D.C., Dr. Putz was instrumental in acquiring funds for the new National Fish Health Research Laboratory at Leetown. In 1977 Dr. Putz became Director of the Leetown Center and the National Training Academy. In early 1982 Dr. Putz was selected as Director of Wildlife Research in Washington D.C., and later as Regional Fish and Wildlife Director for Alaska.He retired from The Fish and Wildlife Service in the late 1980's and founded the Conservation Fund=s Freshwater Institute in Shepherdstown WV. Throughout his entire career Dr. Putz has demonstrated dedication in support not only of fish health but of all areas of fishery research and conservation. His many awards, including the U.S. Department of Interior Meritorious Service Award and the Distinguished Service Award attest to his dedication. It seems only fitting that the many contributions of Dr. Putz to fish health was recognized by the highest honor of the Fish Health Section. Our sincere congratulations and thanks for your many contributions to our profession.

The 1999 Special Achievement Award for a significant accomplishment in the field of fish health, was presented to Dr. Gael Kurath at the annual meeting in Twin Falls, ID. Dr. Kurath, currently at the Western Fisheries Research Center in Seattle, WA, was recognized for her development of a powerful new tool, the ribonuclease protection assay (RPA), that has proven especially useful in assessing diversity of strains of IHN virus. And for her role in transferring this technology to federal, state, tribal, international and private sector biologists who have come to Gael's laboratory for training or sought her out to initiate collaborative projects that use this technology to answer important management questions. Our sincere congratulations and thanks for your contributions to our profession.

**AMERICAN FISHERIES SOCIETY FISH HEALTH SECTION EXECUTIVE COMMITTEE MINUTES**

June 8-11Twin Falls, Idaho

1. The meeting was called to order by President, Scott LaPatra. Present for the executive committee meetings were: Beverly Dixon - Pres.-elect, Mike Kent - Vice-Pres., Jerri Bartholomew - Sec.-Treas, Ray Brunson - Professional Stds, Paul Reno - Technical Stds, Frank Hetrick - Awards, Craig Olson - Continuing Education, Diane Elliott - Nominating, Chris Wilson - Newsletter, Jim Winton - Publications Advisory, Pete Taylor - Promotions, Ted Meyers - Procedures and Christine Moffitt and Sarah Poynton.

2. Presid**ent's Report** - Scott reported on the status and needs of the section. Needs to be addressed are promotion of the affiliate membership status, tying in our continuing education program with recertification and adding this to the procedural manual. There was some discussion about putting forth a resolution to the parent society concerning their role in promoting aquaculture and of our continuing relationship with the USAHA.

3. **Secretary's Report** - Minutes from the 1998 meeting were read and accepted.

4. **Committee Reports: Awards** - Frank Hetrick announced the winner of the Snieszko Distinguished Service Award was Dr. Robert Putz. Gael Kurath received the Special Achievement Award and there were no nominations for student travel. There were suggestions for stimulating interest by listing past award winners in the newsletter. **Continuing Education** - Craig Olson reported on the success of the continuation education program on Judicious use of Antimicrobial Compounds in Aquaculture presented with this workshop. **Nominating** - Diane Elliott reported the election of the following: Jerri Bartholomew - Vice-President, Ana Baya - Secretary-Treasurer, Ted Meyers - Prof. Stds. (3 yr term), Andrew Goodwin - Tech. Stds. (3 yr term), Emmett Shotts - Nominations**. Professional Standards** - Ray Brunson reported that there are currently 60 active Fish Heath Inspectors and 50 Fish Pathologists. There was discussion of an additional certification status but this has not been drafted. Patricia Barbash will be taking over the files for the committee and it was agreed upon by the excom that the chair of this committee should be given the flexibility to appoint a willing member or non-member to handle the record-keeping required for the certification process. **Communications** - Chris Wilson reported that there have been 4 issues of the newsletter published, the directory has been completed and distributed and a FHS web page produced. **Technical Standards** - Paul Reno reported that the BKD chapter has been completed and sent to the excom for comment. In process are the Piscirickettsia and Ceratomyxa chapters and chapters that have been requested for revision include the primary sturgeon viruses, ISA and the bacterial identification flow chart. Sarah Poynton offered to update the section on diplomonad flagellates. Discussion led by Jim Winton followed on the role of the Blue Book in the future with the suggestion that we make a real effort to define the standard methods. The relative roles ofthe Technical Standards committee, the Diagnostic Standardization committee and the QA/AC were discussed and the excom came to agreement that the 4th edition of the Blue Book should continue to be updated, but that work on a 5th edition should begin with approved methods listed first followed by other, less universally accepted methods. There should be a new format for the chapters and this edition should serve as more of a tool for inspectors and pathologists. A section of the new version should include QA/QC as a separate chapter. A number or people were suggested who might take the lead in beginning work on this new version while the Technical Standards committee continues revision of the current edition. The option of distributing new chapters of the 4$^{th}$ edition on the Web page was discussed **Publications Advisory** - Jim Winton reported that recommendations for improving quality, timeliness and page charges have been presented to the AFS but there has been no response. Christine Moffitt replied that issue of page charges is being addressed by AFS and a two-tieredreduction is planned. **Finance** - Jerri Bartholomew reported the section financial status. At this time, $37,169 is held in the general account, the Continuing Education Committee holds $3,811.17 and the AFS holds $335 in a Blue Book account and $36,214 in the Snieszko Endowment Fund. Total FHSassets - $73,718.

**Promotions** - Pete Taylor reported that a brochure for the FHS has been drafted and is awaiting comment by the excom. Advertising for membership and affiliate status has been placed in the European Association of Fish Pathologists Bulletin and will also appear in the Japanese Society of Fish Pathologists journal. The traveling display is still in the planning stages**. Bylaws Review** - Ted Meyers reported that the procedural manual has been completed. Bev Dixon and Ray Brunson will follow through by having the manual printed and distributed. In the future, the Vice-President is responsible for updating the manual. **QA/QC** - Joe Marcino was not in attendance but reported on training programs he participated in and suggested closer cooperation with the Technical Standards committee to develop standard operating procedures and laboratory proficiency testing procedures. **Journal** - A report submitted by the journal editors expressed concern over a low number of submissions in the present year. Steve Kaattari has replaced Margaret Ewing as co-editor. **Program** - Mike Kent reported that next year's meeting will be in Pensacola, Florida in September 4.

**Old Business**

**AFS update** - Christine Moffitt reported on the current status and plans of the parent society
**USAHA/AVLD Meetings** - Scott LaPatra discussed the need for continuing involvement with these societies and it was decided that he should continue to serve as the FHS representative at their meetings.

**New Business**

**International Meeting** - Sarah Poynton presented some thoughts about hosting the international meeting and some suggestions for the direction this meeting might take in the future. If the current pattern is maintained, the next meeting will be held in 2002. Recommendations for selection of sites and organizers were presented. Funds generated from the 3rd International Meeting are being held in an account for start-up monies for the 4th meeting. There was discussion and finally agreement that this meeting should become truly international and rotate between co-sponsoring societies. Sarah recommended that an international steering committee be formed and she volunteered to draft a letter to the co-sponsoring societies to determine if there is interest in having the next meeting outside of the US.

**Meeting Registration** - Jim Winton suggested that to stimulate interest in joining the FHS, we initiate differential meeting registration rates with one fee for FHS members and affiliates and a higher fee for non-members. This was generally agreed upon and will be considered for the next meeting.

**Student Involvement** - Suggestions for increasing student involvement included better publicizing of the student travel award, following up on the student presentation awards at meetings and establishing an ad hoc committee consisting of students.

**General Business Meeting**

1. Scott LaPatra opened with introductions of the current excom, and summarized the accomplishments during his term.
2. **Committee Reports** were presented as above, with some discussion of means for attaching credit to continuing education coursework
3. **New Business** AFS - Christine Moffitt, Pres.-Elect of AFS talked about the new Director of AFS, Gus Rassam, the direction the parent society is heading and how the FHS might participate and benefit more from what the parent society offers. She also suggested that students receive a break on meeting registrations to encourage their attendance and participation.

USAHA representation - Jim Winton made a motion that Scott LaPatra continue to represent the FHS. This was seconded by Emmett Shotts and received unanimous approval.

## 5TH INTERNATIONAL SYMPOSIUM ON FISH PARASITES

**August 9 - 13 1999** Hosted by the Institute of Parasitology of the Academy of Science of the Czech Republic, the meeting will be held in picturesque Ceske Budejovice from 9 - 13 August 1999. The 1999 meeting is the 5th in a series of excellent symposium held every four years, dedicated to parasites of fishes, and over 200 parasitologists from more than 35 countries are expected to attend. The main themes of the symposium are: fish parasites in aquaculture; fish parasites and quality of environment; immune response to fish parasites; morphology, taxonomy and biodiversity; life cycles and ecology; host-parsite relationships; and the 2nd workshop on myxosporea.

The program includes a plenary session, 19 invited papers, oral presentations and a poster exhibition. The symposium language is English. The social program includes a concert in Castle Hluboka, and a tour of South Bohemia including the old city of Ceske Krumlov.You may get further information from the Organizing Committee:Dr. F. Moravec, Dr. J. Lom and Dr. I. Dykova Institute of Parasitology Academy of Sciences of the Czech Republic Branisovska 31370 05 Ceske Budejovice Czech RepublicTel 420 38 777 5432 Fax 420 38 47743
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## REPORT ON THIRD INTERNATIONAL SYMPOSIUM ON AQUATIC ANIMAL HEALTH

The Third International Symposium on Aquatic Animal Health (ISAAH), held August 30 through September 3 1998 in Baltimore, Maryland, and incorporating the 1998 AFS-FHS meeting, was a huge success. This success was due, in large part, to over 425 participants from more than 35 countries gathering to exchange ideas and learn from colleagues in a professional, congenial atmosphere.

* For the first time, the International Symposium on Aquatic Animal Health (ISAAH) has benefited its participants by exploring and sharing animal health issues across wide taxonomic boundaries (from fish and shellfish, to marine mammals and turtles) as well as across scientific disciplines. Additional sessions on harmful algal blooms and global databases brought insight and timely information to attendees. The support of AFS FHS was critical to the success of the symposium, enabling us to build upon the fine examples of the Vancouver and Seattle meetings. Throughout the long run up to the Baltimore meeting, you gave us ideas, energy and enthusiasm that never failed, and we have appreciated your support very much.

* As organizers for the symposium, we were most fortunate to have had the unwavering assistance of all six major international aquatic animal health organizations, who united for the first time

* In addition to the scientific sessions, which comprised 9 plenary lectures, 5 special sessions, and 29 sessions of oral presentations, the symposium also included a poster session with breakfast (which was a big success!), a room of Olympus microscopes to allow colleagues to review slides, and tours of three local aquatic animal health facilities.

We hope that you share our great pride in having supported this symposium, this nexus. In order to take advantage of all the individual efforts already generated, we ask you to maintain your level of enthusiasm and support for the next symposium. We will be sure to keep you abreast of the location as it is decided upon and confirmed. In the meantime, we shall keep the symposium website (http://som1.ab.umd.edu/aquuaticpath/isaahweb) running in order to provide updates on the next symposium as well as downloads of scientific portions of the proceedings from the third symposium. This website is currently being updated for this purpose.

Sarah L. Poynton Ph.D. /Andrew S. Kane Ph.D.
Symposium Co-organizers

## EMPLOYMENT OPPORTUNITIES

Fish Biology/Fish Culture - Assistant Professor - Colorado State University The Department of Fishery and Wildlife Biology at Colorado State University announces the following open position: Tenure-track 9-month appointment for Assistant Professor in fish biology/fish culture. Position begins January 2000. Qualifications: Earned Ph.D. in fish biology or closely related field, with specialty in fish conservation genetics, fish pathology, or fish physiology. Demonstrated knowledge or experience in fish culture. Postdoctoral or agency experience, demonstrated research productivity, and demonstrated teaching experience employing modern technology are highly desirable. Duties: Teach undergraduate courses in fish culture, ichthyology or fishery biology methods, and a course in area of expertise that serves students across the university. Advise undergraduate Fishery Biology majors and develop a funded research program with graduate students. Application: Send curriculum vitae, official transcripts, representative publications, three letters of recommendation (one from Ph.D. adviser), and statement of interest that includes your philosophy for combining teaching and research at a Land-Grant university to Dr. Kurt Fausch, Chair of Fish Biology/Fish Culture Search Committee, Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, CO 80523. Faxed applications are not acceptable. Deadline: Review of applications will begin 1 August 1999. Selection will continue until position is filled.

See our website (http://www.cnr.colostate.edu/FWB/) for more information.

Colorado State University is an AA/EEO employer and educational institution. Dr. Kurt D. Fausch Department of Fishery and Wildlife Biology and Graduate Degree Program in Ecology Colorado State University Fort Collins, CO 80523970-491-6457FAX:970-491-5091kurtf@cnr.colostate.eduhttp://www.cnr.colostate.edu/~kurtf/kurtf.html

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## REQUESTS FOR PHOTOGRAPHS FOR FHS PROMOTIONAL BROCHURE

The current layout for the new FHS promotional brochure has space for about 8-10 color pictures. This is an opportunity to drag out those great graphics in your collections and possibly get them in print (Sorry, no room for formal credits, but you and God will know!)

The pictures will be strictly for color enhancement and eye appeal so no captions will be used. Flamboyant histo stains, really groady fish, field pictures, lab pictures etc. are needed. We'll even accept shots of past FHS officers, major professors and other notables in compromising poses (not to be used for brochure, but to bartered later for beer). We especially need shots from any of the Continuing Education programs (shot of lecture or general class).

We can use either prints or slides. All material will be returned after we have copied or scanned them in. We realize that digging out material takes time, but please take a few minutes and help us out. This brochure is going to represent all of us so we want to make it as good as we can. We need these pictures as soon as possible so we can start getting printing costs worked up.

Send material to: Pete Taylor, Chairman – FHS Promotions Committee
1440 Abernathy Creek Road
Longview, WA 98632

## AFS: A NEW LEADER; TIME TO MOVE FORWARD

A doctorate from the University of Minnesota, graduate studies at Sorbonne University in Paris, Fulbright scholar, twelve years of staff experience at high levels in several professional societies, a recognized leader in electronic journal publications, and a dynamic personality that won over a very critical selection committee. These are all attributes of the new AFS executive director, Dr. Gus Rassam. Tax day (April 15) was an auspicious day to finalize the offer for the new AFS executive director and the announcement was received just as I was writing this column. Personally, I am thrilled with the selection of Gus as our new executive director and I believe that this inaugurates a new epoch for the society and opens the door to many new opportunities. I hope that each of you will similarly support this decision and work together to move forward with the business of the American Fisheries Society.

Let's cut to the chase. Gus is not a fisheries professional. He will come into the AFS with a background in geoscience, publications manager of the American Geophysical Union, and since 1994 with the Optical Society of America. As Director of Program Development, Publication, Marketing, International Affairs and Customer Service for OSA, he supervised a staff of 45 and a budget of $9 million which produced, among other things, 7 print journals, 20 books per year and 5 online journals. But he's not a fisheries professional. The question that we pondered seriously was, "How significant is this qualification?" Initially, we thought that it was paramount. It only makes sense that the AFS hire a dyed-in-the-wool fisheries professional. But consider this further and the assumptions start to crumble. What are the major issues faced by AFS? Many are financial, others deal with electronic publications, stagnant membership, enhanced responsiveness to membership needs, and the need to have an effective advocate for the aquatic resources that we all treasure so dearly. Dr. Rassam was exceptional in all of these areas save the experience of working on aquatic issues. There were no other candidates with near the qualifications in running a society as those of Gus. Clearly, he offered new ideas, insight into professional society management, hard won experience, and a successful track record that we found very attractive.

So the question comes down to being an effective advocate. As a scientist, Dr. Rassam is data driven, as a leader he is dynamic, as a person making a point he is effective. These are the characteristics of an advocate. We feel that, with the aquatic expertise in the membership and the support of the officers, the learning curve on aquatic issues would be steep but easily negotiable. Yes, Dr. Rassam can become well versed on aquatic issues and be a very effective advocate The committee of seven members entered the process of selecting a new executive director firmly believing that it was, for most of us, the most significant role that we would play as a member. We soberly deliberated the decisions and studied the resumes and references of many excellent professionals but knew that we were looking for a leader. Our group consisted of an AFS past-president, an AFS president, an AFS vice-president, a Division president, a Section president, the architect of our Strategic Plan, and the keeper of the AFS finances. Clearly not an easy group to sway. Yet we are firm in our belief that we have made a good recommendation, the governing board, after due consideration approved, and now it is up to you to make the final gesture of acceptance. We believe that we have a winner and it is now the responsibility of each member to ensure that Gus Rassam learns the issues and becomes the AFS executive director that we want and need.

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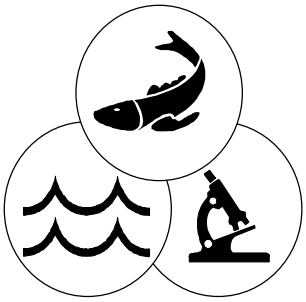

www.fisheries.org/fhs

**Deadline for next issue:**
**October 1, 1999**



# Fish Health Newsletter - Editorial Policy

The *Fish Health Newsletter* is a quarterly publication of the Fish Health Section of the American Fisheries Society. Submissions on any topic of interest to fish health specialists and preliminary case reports are encouraged with the understanding that material is not peer reviewed. Abstracts submitted to the *Journal of Aquatic Animal Health* are also encouraged. Articles should not exceed two newsletter pages and should not have more than five references. Submissions *must* be formatted in WordPerfect 6.x (preferred) or other major Windows word processors, and can be sent by electronic mail or via 3.5" floppy disk to the content editor's address below:

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