Fish Health Section Newsletter

Volume 6 July-September 1978 Number 3

K.C.—HOT!

KANSAS CITY-JOINT FISH HEALTH SECTION
AND
MIDWEST FISH DISEASE WORKSHOPS

A number of interesting papers were delivered at Kansas City this year. Sanders and Fryer gave Bacterial Kidney Disease a name, Corynebacterium salmonis. Trevor Evelyn showed how easy it was to culture as long as you used the right medium and took a few simple precautions in isolating it. Bill Klontz demonstrated that B.K.D. could be stopped by water hardening eggs in Erythromycin-Phosphate. Ulcerative Dermal Necrosis of goldfish was shown to be caused by a late-pigmenting strain of Aeromonas salmonicida and many facets of the disease were described in several papers (Shotts, et al.; Elliot and Shotts; Leteux). Bill Paterson suggested that this bug may be the long lost Haemophilus piscium.

Other new pathogens introduced included a golden shiner virus (Mitchell and Plumb) and a systemic myxobacteria from rainbow trout (Busch, Burmeister, and Scott). Although the creation of an attenuated viral vaccine against Channel Catfish Virus by Noga, Walczak and Hartman was acclaimed as good news, something less than enthusiasm greeted Hartman's announcement that his group was trying to create a virus from CCV that was virulent for walking catfish (Clarias batrachus) but incapable of infecting ictalurids and that this new virus would be released in southern Florida as a control for walking catfish. Perhaps this is most scary to those of us who are not eminent virologists and do not know the machinations involved here. As editor of the FHS Newsletter, I openly invite Dr. Hartman and/or his colleagues to allay our fears via an article in the Newsletter. Opposing views from qualified virologists will also be accepted for publication.

Mitchell and Hoffman stressed the importance of knowing the species of parasites involved in correctly diagnosing and treating epizootics. Many diagnosticians ignore the species and have assumed that all Trichodinas are born equal. Mark Dulin also addressed a subject often ignored; the diseases of aquarium fishes. There is a lot of money here and it deserves attention.

Vaccination against enteric redmouth still needs some work (Carlson and Wildey; Moody; Busch, Burmeister and Scott) before it can be considered a good prophylactic tool.

Drug approval and registration produced some fireworks. Don Amend (Tavolek, Inc.) began his speech by promising to bite the hand that formerly fed him (the U.S. Fish and Wildlife Service), but instead, he took off its arm at the elbow. Since the tests required by the F.D.A. and E.P.A. (outlined by Beverly Corey and Raymond Matheny respectively) are quite expensive, the Fish and Wildlife Service must be very selective in choosing which drugs to test. Amend's point was that if the FWS chose one company's product to test over another's, that favored company would be advantaged by at least several hundred thousand dollars over its competitors. Conversely, if the FWS does not help in some way, drug companies could not afford the cost of clearing these drugs which have a very limited market.

Finally the meeting was capped by the first presentation of the S. F. Snieszko Distinguished Service Award to "Doc" Snieszko himself.

EDITORIAL

Having recently joined the ranks of the unemployed, there were several things which particularly struck me at the Midwestern. Richard Heckman's talk on how to conduct yourself at interviews, etc., was interesting, of course, but what do you do when there are no jobs for which to interview? How many announcements for fish health specialists have you seen lately? How many have you seen in the last five years? Let's face it. The feds, the states, and the universities have been the prime employers. They have about maxed out on positions and the turnover rate is going to be slow. If private industry does not start picking up fish health specialists, a lot of us will be selling encyclopedias. I was, therefore, very interested to hear what John Plumb had to say about addressing the needs of private industry and to hear from private industry (Don Amend, Tavolek, Inc.; Bob Busch, Rangen, Inc.; and Guy Tebbit, Wildlife Vaccines, Inc.) concerning its needs and how it was faring. It looks like Fat City is a long way off for all of the commercial fish health specialists.

What about the commercial fish farmer? Assuming (?) the fish health specialist must first be a good fish culturist, are jobs available here? Fairly dry prospects, again. The vast majority of fish farmers that I know have never taken a formal aquaculture course or even a college level general biology course. They have a degree in business if they have been to college at all. Some are even making money at it! Several have told me that they have hired biology majors or folks with an aquaculture course in their background and have been disappointed. What is going on here? Why is the commercial wing of aquaculture dominated by people trained in something else? I am not sure, but I think that part of it may be that we are unconsciously trained to seek and fill government jobs. Whether you are a culturist or strictly a pathologist, who among you was taught how to hustle customers, how to work within a budget, how to get a small business loan, how to work a backhoe (or even a tractor), how to weld? I wish I knew how. I intend to learn. Comments, anyone?

So if I am unemployed, what am I going to do about it? I intend to broaden my fish culture and disease background by bleeding Bill Klontz (University of Idaho) for awhile (if I can just take his humor (?) that long) and then I'll go out and conquer the world. Why not?

SOME WORDS FROM PRESIDENT GOEDE ON COMMITTEE ACTIVITIES

The Fish Health Section is conducting a fair amount of business these days and the existing committees are functioning fairly well. It is now time to proliferate and expand our activities to more accurately represent the total fish health spectrum.

We are currently concerning ourselves almost solely with infectious diseases and even then only in an "in-house fashion."

An Ad Hoc Committee was initiated to determine the best way to incorporate specific concern for non-infectious diseases into our sphere of interest. This should include toxicology, nutrition, environmental health, clinical chemistry, etc.

A committee was initiated to consider forensic fisheries in an effort to define an interest in evidential investigations and consider the use of our science in law. Fish health specialists appear quite naive in this matter. This committee will also investigate feasibility and method of incorporation.

Dr. George W. Klontz will head up a new Ad Hoc Committee to investigate need and feasibility of section involvement in continuing education. This could be a vital addition.

Dr. John Plumb is chairing a committee for investigation of the communications and general relationship between the Fish Health Section and the private fish industry. The feeling that there is a problem is shared by many. It is hoped that the problems can be eliminated or minimized.

These new committee actions should provide new and vital activity for the Section. These will all be dealth with in much more detail in subsequent newsletters. Any and all input would be welcome and can be submitted to Ron Goede for the time being at:

Utah Division of Wildlife Resources
Fisheries Experiment Station
Rt. #1, Box 254
Logan, Utah 84321

Standing Committees have been appointed now and the chairmen are as follows:

Nominations -	George W. Klontz
Finance Committee -	Robert Busch
Membership and Balloting -	Dennis Anderson
Technical Procedures -	Guy Tebbit
Professional Standards -	Richard Heckman
Board of Certification -	Pete Bullock
Newsletter and Publications -	Joe Sullivan

Ad Hoc Committee chairmen are as follows:

Awards Committee -	Jim Warren
Non-infectious disease -	to be announced
Forensics -	to be announced
Continuing Education -	George W. Klontz
Private Industry Relations -	John Plumb

SNIESZKO GETS SNIESZKO

S. F. SNIESZKO RECEIVES THE FIRST FHS S. F. SNIESZKO DISTINGUISHED SERVICE AWARD

The S. F. Snieszko Distinguished Service Award was established by the Executive Committee of the FHS in 1978. Accordingly Dr. Stanislas Francis Snieszko, former Director of the Eastern Fish Disease Laboratory, Leetown, W. Va. was the first recipient of the Award. He was presented the Award so that the FHS could appropriately recognize his tremendous and unequaled contributions to the advancement of fish diseases and health for over 40 years. The Award was presented to Dr. Snieszko on August 16, 1978 at the 3rd Biennial Fish Health Section Meeting in Kansas City. Unfortunately, Dr. Snieszko could not attend, therefore, Dr. Ken Wolf accepted the Award on Dr. Snieszko's behalf.

Dr. Snieszko came to the U.S. from Poland in 1939 as an exchange professor to the Agricultural Experiment Station, Cornell University. He received his Ph.D. from Jagellonian University in 1926, During his early years in the U.S. Dr. Snieszko did research on soil myxobacteria for Cornell and worked in plant pathology and fish diseases at the University of Maine. Dr. and Mrs. Snieszko became U.S. citizens in 1944 and then was rewarded by being drafted as Captain in the bacteriological warfare unit at Fort Dedrick, Maryland. We understand that even though he did not master the subject of military protocol, he was honorably discharged.

It was our gain that in 1946 Dr. Snieszko joined the staff at the fish disease laboratory, Leetown, W. Va. where he later was Director until his retirement a few years ago. During his active leadership at Leetown he established a fish health program which has received world wide acclaim.

Dr. Snieszko has played no small role in the development of the science of fish health, not only in the U.S., but in the world. He has made great contributions in the training of fish health biologists, teachers, and researchers throughout the world. For many years he has been the standard that many of us have tried to maintain, but few of us have. Dr. Snieszko's abilities have not been limited to his professional contributions. He has given himself unselfishly to many people in counseling, direction, encouragement, and simply being a friend. Not the least of his attributes is his compassion and love for other people and animals including pet skunks, robins, or any other hungry creature.

Dr. Snieszko is the first recipient of the FHS S. F. Snieszko Distinguished Service Award, and there will be others. It is hoped that all of us shall strive to attain the excellence worthy of this award and that it will become a landmark of contribution to the field of fish health medicine.

--John A. Plumb

GOEDE, MITCHUM, BUSCH, MCDANIEL ON TAP AT K.C.

Ron Goede took up the reins of the FHS presidency at Kansas City this past August. Doug Mitchum was chosen as president-elect and will be waiting in the wings for next year. Bob Busch is the new secretary-treasurer and Dave McDaniels is the new member of the board of certification. Congratulations, gentlemen.

FISH DISEASE LABORATORY OF TORINO, ITALY

This lab has been in existence for many years. Prof. Dr. Pietro Ghittino DVM, Ph.D. is the director and employs one full time technician, one part-time histopathologist, one part-time assistant in parasitology, and one in bacteriology. Consultation with virology and chemical labs is available nearby. Diagnostic services are available to veterinarians, fish farmers, fishermen and fish hobbyists. About 60 visits to fish farms are made each year, and four to five thousand fish disease cases have been diagnosed. Fish disease courses are given at universities and in continuing education for veterinarians and fisheries biology scientists, domestic and foreign. Experimental fish farm research is done at the lab or at concerned trout farms and may concern the Ministry of Veterinary Health as well as private industry. Dr. Ghittino is chairman of the Permanent commission of the International Office of Epizootics (OIE) for Fish Diseases, cooperates with FAO, WHO and other organizations; interests are national and international. Many papers have been published, mainly on fish diseases, but some on fish farming. Dr. Ghittino published a two volume treatise (Piscicoltura e ittiopatologia, 1969-1970, out of print) and is founder and editor of the 13-year-old quarterly magazine RIVISTA ITALIANA PISCICOLTURA ITTIOPATOLOGIA. For further information contact Dr. G. L. Hoffman, U.S. Fish and Wildlife Service, Fish Farming Experimental Station, P. O. Box 860, Stuttgart, Arkansas 72160, U.S.A., or Prof. Dr. Pietro Ghittino, Fish Disease Laboratory, Istituto. Zooprof. Sper. Piemonte Liguria, Via Bologna, 148--10154 Torino, Italy.

DIAGNOSTIC LIST REVISION

It is due almost immediately. If you wish to add your name to the list as published in the Commercial Fish Farmer 1977, Vol. 4(1): 33-37 please send information soon. Also, if you wish to change anything, let us know. If you have capability in all aspects, no qualifying statement is needed. However, if you are not prepared for certain aspects so state. Lack of viral capability has caused confusion in some instances. If you are prepared to do any toxicity diagnosis better state "including toxicity." If we don't hear from you we'll re-publish your name, etc., as it was in the 1977 list. Glenn L. Hoffman, Andrew J. Mitchell, U.S. Fish and Wildlife Service, Fish Farming Experimental Station, P. O. Box 860, Stuttgart, AR 72160.

SECOND ANNUAL REPORT
THE COMMITTEE ON TAXONOMY OF BACTERIAL PATHOGENS OF FISHES
FISH HEALTH SECTION
AMERICAN FISHERIES SOCIETY

August 1978

Chairman and Co-chairman: S. F. Snieszko and E. B. Shotts

Members: G. L. Bullock, T. P. T. Evelyn, D. H. Lewis, D. H. McCarthy, J. E. Plumb (ex officio), E. B. Shotts, Jr., T. J. Trust

This report is a continuation and updating of the first report of September 1977.

1. Fish Pathogenic "Myxobacteria."

Dr. Hans Reichenbach from Braunschweig in Western Germany is devoting considerable time and effort with his graduate students to the study of Cytophaga. When he saw in the ASM News (Vol. 43 No. 2) about establishment of this committee, he wrote to me indicating that he has very few isolates of Cytophaga (or related myxobacteria) obtained from fishes. Dr. Bullock sent him a number of cultures from our stocks and I have asked some members of this committee to send him additional cultures. So far he has received no additional cultures.

I have received from him a number of reprints of his research paper. I have reviewed one of his papers in Vol. 7, No. 1, p. 38-39 of FISH HEALTH NEWS. (A copy of this review follows immediately. -- Ed.)

Dr. Reichenbach was in the U.S. this year in July and visited our laboratory at Leetown. He told me that Cytophaga probably will have to be divided into several genera; that it is an important aquatic organism that plays a role in the sewage. It seems that it is not sufficiently related to "Myxobacteria" to be included among these microorganisms. He and several of his students intensively study the Cytophaga group. He will appreciate shipments of isolates of Cytophaga, Flexibacter columnaris, and other similar bacteria from fishes. His address is Dr. Hans Reichenbach, G.B.F. Mascheroder Weg 1., D-3300, Braunschweig, Western Germany. Please identify the culture by source, date and if isolated from diseased fishes. "Gill disease" isolates are also desirable.

2. Kidney Disease Corynebacterium

In the last year report, I have indicated that Dr. Stemke from Edmonton in Canada is doing research on this organism. Through Dr. McCarthy, I received a preliminary version of Dr. Stemke's report which he is preparing for publication. According to this report the GC Mole percent of K.D. bacteria is 55 to 56 that is typical for corynebacteria. It seems that the systematic position of K.D. bacteria is established. Therefore, it would be time to give it a name, instead continuing to use the term K.D. corynebacteria.

3. Genus Aeromonas

Dr. McCarthy and Dr. Shotts are presenting papers on this group of fish pathogens. Therefore, I am refraining from including them in this report. I am hoping that they will come with specific taxonomic recommendations.

Other subjects are the same as in the last year report.

I should like to suggest that a short progress report of this committee be prepared for the International Journal of Systematic Bacteriology.

S. F. Snieszko

NEW PUBLICATIONS

MYXOBACTERIA

Reichenbach, H. 1974. The biology of myxobacteria. (Die Biologie der Myxobakterien). Biol. Unserer Zeit 4(2): 33-45. (Gesellschaft Biotech. Forschung mblt Mascheroder Weg 1 D3300 Braunschweig-Stockheim, Fed. Rep. Germany).

A very complete and abundantly illustrated review article.

In 1965, Soriano and Levin suggested the name Flexibacteria for Myxobacteria on the basis of their gliding movements. Reichenbach does not consider this justified, because the gliding mode of motion has not been determined for all Myxobacterales. Therefore, he uses the term Myxobacteria. The author divides gliding bacteria into three groups:

1. Cyanophyceae (Oscillatoria)
2. Cyanomorphae (Beggiatoa)
3. Flexibacteriae (divided into):
   - A. Cytophagales with guanine-cystosine (GC) ratio of 32-45%, and these he subdivided into three genera:
     1) Cytophaga
     2) Flexibacter
     3) Sporocytophaga
   - B. Myxobacterales with GC values of 68-70%, six genera, among which only two: Myxococcus, and Chondrococcus may be of interest to fish health specialists.

The author indicated that on the basis of the GC ratio, the fish-pathogenic Myxobacteria belong to Cytophagales. However, in his correspondence with me, the author indicated that the GC ratios were established only with very few gliding bacteria isolated and those had been isolated from diseased fishes in Germany.

Myxobacteria are predominantly aerobic soil-inhabiting bacteria throughout the world, and they occur in a great variety of ecological conditions. They are abundant in decomposing organic matter and in other bacteria and may be isolated and cultured on media consisting of agar and cells of intestinal bacteria such as E. coli. Contrary to earlier statements, Myxobacteria may be easily grown in liquid media with the production of about 2.5 g of dry bacterial cells per liter of medium. Peptides are the preferred source of nitrogen and they also serve as sources of carbon. Some digest cellulose and others may lyse other species of bacteria. Vegetative cells are gram-negative and myxospores are gram-positive. Their ultrastructure is very similar to that of true bacteria. Most of the Myxobacteria contain carotenoid pigments. Production of such pigments is greatly increased by exposure to blue light.

I wish to add that there also seem to be Myxobacteria characteristic of the aquatic environment. Such Myxobacteria seldom, if ever, produce fruiting bodies, and production of myxospores is questionable; they include species parasitic or pathogenic on fishes. They also develop on aquatic vegetation and may be destructive to eelgrass (Zostera marina). (S. F. Snieszko) (Paper in German)

PAPERS FROM THE NORDEN FISH DISEASE CONFERENCE, 1975

The National Marine Fisheries Service has published seventeen of the fish disease papers presented at a symposium sponsored by Norden Laboratories of Lincoln, Nebraska, 9-10 June 1975. This collection of works appeared as the March 1978 (Vol. 40, no. 3) issue of Marine Fisheries Review. The papers are divided into two groups. The first, entitled "Immunology and Preventive Medicine" addresses the immune mechanisms in fish and advances in vaccine production and immunization of fish. The second group, "Diseases and Their General Control" is as miscellaneous as the title implies, but all papers in both groups have at least some applied value to aquaculture.

A limited number of copies are available from Anthony J. Novotny (Editor), National Marine Fisheries Service, NOAA, Marine Fisheries Research Station, P. O. Box 38, Manchester, Washington 98353.

N O T E !

All applications for membership and payment of dues should now be sent to:

Dennis Anderson
Fish Disease Control Center
Bureau of Sport Fisheries and Wildlife
P. O. Box 917
Fort Morgan, Colorado 80701

ERRATUM

In the last issue we reported Chloromyxum esocinum of Northern pike for the first time in North America. Unfortunately we overlooked the same from J. R. Arthur, L. Margolis, and H. P. Arai 1976, J.F.R.B.C. 33(11): 2489-2499 from Stevens Lake, Yukon Territory, Canada. (G.L. Hoffman, U.S. Fish and Wildlife Service, Fish Farming Experimental Station, P. O. Box 860, Stuttgart, AR 72160 USA)

BODOMONAS CONCAVA A CRYPTIC CRYPTOGRAM FOR CRIPPLING CRYPTOBIA BRANCHIALIS

Cryptobia, Bodomonas, Trypanoplasma, the late H.S. Davis, Jiri Lom, Dale Becker, goldfish and catfish. According to Lom, Becker, and the International Code of Binomial Nomenclature, the gill loving biflagellate known previously as Bodomonas concava, Davis 1947, is Cryptobia branchialis Nie. We have diagnosed three serious epizootics of C. branchialis in goldfish and catfish in the past few days. This parasite, found primarily on gills, but also on the body, is about 19 x 5 m, has an anterior depression (hence "concava"), with a long 24 m, trailing flagellum which originates in the anterior of the body, and a smaller anterior flagellum, also originating in the anterior of the body; it swims with a pronounced flexing of the body. For study, try ringing the cover slip with vaseline or similar gunk before placing it on the gill material; in 20-30 min. the flagellates slow down, perhaps due to anoxia. In contrast, Cryptobia agitans (Colponema agitans Davis, 1947; Cryptobia agitata Chen, 1956) is smaller, 12 m, has a triangular shape, darts about "agitatedly" and is considered non-pathogenic--we saw a lot of this last year. Both of these are relatively common on pondfishes in Europe, Asia, and the U.S.A. Because of the "Rules" and such a different biological location, the biflagellate blood dwelling organisms are placed in the genus Trypanoplasma. As time goes on the generic name confusion will disappear. For further information see C. D. Becker 1977, Flagellate Parasites of Fish, pp. 384 and 385 in Kreier J. P. (ed.) Parasitic Protozoa Vol. 1, Acad. Press, or contact Dr. G. L. Hoffman and Drew Mitchell, U.S. Fish and Wildlife Service, Fish Farming Experimental Station, P. O. Box 860, Stuttgart, AR 72160, USA.

EDITOR'S ADDRESS CHANGE -- PLEASE NOTE

Please send items for the Newsletter and any other correspondence to:

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The NEWSLETTER of the Fish Health Section of the American Fisheries Society is published four times annually in accordance with Section objectives and mailed to the Section membership in good standing at the time of publication. The use of company or registered trade names does not constitute an endorsement but serves only to keep members informed. Contributions to the NEWSLETTER are encouraged and should be sent to one of the following Committee members no later than the 1st of December to be included in the next quarterly issue. The NEWSLETTER Committee members include:

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