

Fish Health Section Newsletter



Volume 7

January-March 1979

Number 1

AMERICAN EELS BANNED FROM DENMARK

The importation into Denmark of live eels from the United States has been banned in order to prevent the introduction of Infectious Hematopoietic Necrosis (IHN) into the Danish trout industry. The Danish Veterinary Directorate (DVD) felt that IHN could survive in eel cells and that U.S. eels may be healthy carriers of IHN. One of Denmark's leading import/exporters of eels, Mr. Henning Brazen, estimates that the present potential for importation of live U.S. eels is between 100 to 200 tons per year.

Don Amend and I (editor) recently discussed this matter with N.O. Christensen of the DVD who was visiting this country. I pointed out that eels and trout are very distantly related and cross infectivity of salmonid and anguillid viruses seems unlikely. Christensen expressed concern that an eel could eat an infected trout and passively carry the disease in its feces to Denmark. Amend pointed out that eels and trout usually do not occupy the same habitat and that eels are found only in Atlantic drainages whereas IHN is or almost is exclusively found in Pacific drainages.

At first, the possibility of IHN transfaunating from here to Denmark via eels seems extremely remote; but are the obstacles that great? True that eels and salmon are very distantly related, but IHN is a rhabdovirus and this group infects plants, insects, poikilotherms and homeotherms. Another rhabdovirus, rabies, can at least survive in most, if not all, mammals. How widespread is IHN? Perhaps better, how widespread is it likely to become east of the Rockies? The habitats of eels and trout overlap as much as other cold, cool, and warm water species do. Surely many trout have been eaten by eels and vice versa.

Each necessary link appears very unlikely, but possible. The combined effect makes transfaunation of IHN by eels seem very remote, but not remote enough for the Danes. This situation is not unique. Before importing bass into some states, they must be inspected for certain salmonid parasites that they could not possibly be carrying. Let's have some opinions on this sort of thing. How far should certification processes go? Readers, carry the ball!

Handwritten notes:
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GOEDE ON AFS EXECUTIVE COMMITTEE MEETING

The semiannual meeting of the AFS Executive Committee was held on March 26th and 27th in Toronto, Ontario.

I attended that meeting as an official member representing the Fish Health Section and was therefore able to intercede in a couple of important items relative to the "Section" concept.

Inasmuch as you are all members of the American Fisheries Society you will all be advised of the actions of that Committee as it appears in "Fisheries." I will, therefore, confine my comments to those areas of action relative to the Section and try to provide some insights.

The Section concept is relatively new in the American Fisheries Society and has, in the past, served as a source of bewilderment to the Society in general.

I served two years on the Executive Committee as President and immediate Past President of the Western Division and was privy to many official and unofficial discussions relative to these determined newcomers and their needs.

The Parent Society did not know how to interact with these groups and the newly chartered organizations were not sure how they should function within the Parent Society. They did indeed have serious doubts as to whether they needed each other at all.

The sections wanted an official seat on the Executive Committee and therefore a voice in policy making while the Parent Society, recognizing a potential "bloom" of these discipline oriented groups, feared growth of the Executive Committee into a cumbersome monster which more closely resembled a congress.

This problem was resolved by allowing on the Executive Committee only those sections with memberships in excess of 200. The Fish Health Section and Fish Culture Sections are the only sections to achieve this membership to date.

The sections have been strong of will and resolute of purpose and have been learning how to function within the Society.

We now recognize the excellent and extensive service available to us through the office of the Director and staff. We have found that honest and thorough proposals from the Section receive honest and thorough attention from the Director's office as well as from the President and his Executive Committee.

Editorial help has been excellent and the handling of sales of our publications is invaluable. Our very association with the Parent Society lends relevance to our sections.

The above verbage is leading up to a statement on dues increase which will be necessary for the multifaceted AFS program which now more nearly represents the professional sphere of responsibility.

It was proposed that a rebate for sections be attached to the dues increase and that each member indicate to which section his share should be sent.

I am proud to say that the sections present at the meeting supported the dues increase after lengthy discussions but uniformly opposed the rebate.

This show of strength and independence was impressive. The sections are able to make it on their own which puts them one up on the Regional Divisions.

We felt that the isolation which prompted formation of sections would also work against us in the rebate and that we would gain little. It was also pointed out that newer and/or smaller sections should "fly" on their own or die. A rebate may "keep alive" a section which should die for lack of strength.

We opted to have Section dues collected by the Parent Society instead of by the sections. This relieves the sections of some logistic problems and allows a member to take care of it all at once.

Out of all of these discussions there arose an Ad Hoc Committee to establish some guidelines for formation of sections and for their acceptance into the Society as bonafide sections.

Some of the proposed groups are too esoteric and should likely be committees instead.

It appears that the vitality of the Society increasingly involves the local chapters and the discipline sections and the role of the Divisions becomes more diffuse and difficult to justify.

I'll summarize by saying that we are now functioning as strong, independent, but responsible members of a professional organization which is so sorely needed in today's impact oriented world. We are gaining parliamentary experience and are here to stay.

I know many of our fish health specialists are not fisheries people in the traditional sense and are not willing to join the AFS to join the FHS. To this idea I say fish and fisheries are the bottom line and an umbrella organization is needed to add relevance to our efforts in behalf of fish health. Using this thought, please bring new members into our Section. We need them at the technical and biopolitical levels.

ERM ON THE MOVE

Yersinia ruckerii has been identified, by means of the direct fluorescent procedure, in 4-5 inch rainbow trout from south central Kansas. These fish had been imported from a private grower in a neighboring state three weeks prior to the diagnosis. Mortalities began two days after they were received and placed in a small raceway supplied with 60° F water. Terramycin therapy appeared to be ineffectual. Approximately 1,000 of the original 5,000 trout have been lost. This is apparently the first report of ERM in Kansas. (Paul W. Janeke, FDCC, Ft. Morgan, CO.)

SNIESZKO AWARD

AWARDS SYSTEM PROPOSED

An Awards Committee has been established by the Section. It will formally become a standing committee when revised FHS Bylaws are prepared and approved. In the meantime committee chairman Jim Warren and committee members Glenn Hoffman and Tosh Yasutake have prepared procedures for nominating and selecting individuals for the S.F. Snieszko Distinguished Service Award. These procedures are published below for membership review and comment. Please send your suggestions and editorial comments to: Jim Warren, P.O. Box 252, Genoa, Wisconsin 54632 within three weeks of receiving this copy of the Newsletter.

FHS Members should also begin thinking of individuals who should be honored by the FHS by selection as recipients of the Distinguished Service Award. Although the closing date is set (in item "5") as January 15, (1980) it is not too early to send formal letters of nomination to Jim Warren so that an orderly selection process can begin. No distinguished service award will be presented in 1979 and more than one may be presented at the 1980 FHS Biennial Meeting.

AWARDS COMMITTEE GUIDELINES

- (1) The Awards Committee shall consist of three members in good standing who are selected by the President on three year staggered terms. The senior member shall be the chairman.
- (2) The Awards Committee shall solicit nominees for the Distinguished Service Award from the Section membership.
- (3) The Distinguished Service (DS) Award is the highest award of the Fish Health Section. The purpose of the DS Award is to honor individuals of outstanding accomplishment in research, field work, and other activities, including participation in Section affairs, who have made a noteworthy contribution furthering the objectives of the Fish Health Section.
- (4) The Chairman of the Awards Committee shall, by July 1, submit to the Newsletter Editor an announcement outlining the purpose of the DS Award. This announcement shall be published in the next Newsletter to aid in soliciting nominations from the membership. *Sept 1 in Guidelines ?*
- (5) The closing date for receipt of nominations from the Section membership shall be January 15 of the year in which awards are to be presented. All nominations must be supported by appropriate documents.
- (6) The Distinguished Service Award need not be presented every year and more than one presentation can be made when appropriate.

- (7) The Awards Committee shall select nominees for the DS Award and shall submit the names, in order of preference, together with copies of the supporting documents for each, to the Section Secretary-Treasurer for distribution to the Executive Committee for mail vote no later than three months before the meeting at which awards are to be presented.
- (8) The Chairman of the Awards Committee will immediately arrange with the parent Society for the preparation of appropriately framed or plaque-mounted award certificates.
- (9) Procedures for presentation of Awards:
 - a. At the meeting banquet or other suitable time the President shall call on the Awards Committee Chairman who shall read the biographical sketch and name the recipient of the DS Award.
 - b. The President shall present the framed certificate.
 - c. The local Arrangements Committee for the meeting shall arrange for a photographer to record the presentation.
- (10) The local Arrangements Committee Chairman under direction of the retiring chairman of the Awards Committee shall forward photos and comments about award recipients to the editor of the FHS Newsletter no later than December 1 of the year in which the award was presented.

MEETINGS

WESTERN FISH DISEASE CONFERENCE

The Western Fish Disease Conference will be held June 19 and 20, 1979 at the Pacific Biological Station, Nanaimo, British Columbia. For more information contact Gordon Bell, Pacific Biological Station, Nanaimo, B.C., V9R 5K6.

ANNUAL MEETING OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION

The American Society of Laboratory Animal Practitioners, in cooperation with the American College of Laboratory Animal Medicine, is sponsoring a one-half day session at the Annual Meeting of the American Veterinary Medical Association in Seattle. The theme title of the session is "Diseases and Pathology of Fishes." This session is scheduled for Wednesday morning, July 25, 1979 in Shaw Room, Seattle Convention Center.

Co-Conveners: Louis R. Nelson, D.V.M.
Douglas McKelvie, D.V.M., Ph.D.

8:30 - 9:00 A.M. Introduction: Fish Anatomy and Physiology and Fish Disease as It Relates to Management and Nutrition.

Mark P. Dulin, D.V.M., M.S.
Pathology Investigator
Pathology, Toxicology and
Parasitology Laboratory
USDA - APHIS
National Veterinary Services Laboratories
P. O. Box 844
Ames, Iowa 50010

9:00 - 9:30 A.M. Bacterial and Fungal Diseases of Fishes

Marshall H. Bealeau, D.V.M., M.S.
Department of Fishery Resources
University of Idaho
Moscow, Idaho 83843

9:30 - 10:00 A.M. Parasitic Diseases of Fishes, Control and Therapeutics

Glenn L. Hoffman, Ph.D.
Fish Farming Experimental Station
Bureau of Sport Fisheries and Wildlife
U.S. Department of Interior
Stuttgart, Arkansas 72160

10:00 - 10:15 A.M.

B R E A K

10:15 - 10:45 A.M. Viral Diseases of Fishes, Immunologic Advances

Donald F. Amend, Ph.D.
Tavolek, Inc.
2779-152nd Avenue
Redmond, Washington 98053

10:45 - 11:15 A.M. Neoplastic Diseases of Fishes; Significance to Cancer Research

John C. Harshbarger, Ph.D.
Director Registry of Tumors in Lower Animals
National Museum of Natural History
Smithsonian Institution
Washington, D.C. 20560

11:15 - 11:30 A.M. Question and Answer Period for All Speakers

Five speakers - 25 minutes with 5 minutes discussion

15 minute Break after third speaker

15 minute Discussion with all speakers at the end of program

QUARTERLY HIGHLIGHTS OF FWS REGISTRATION ACTIVITIES INVOLVING
FISHERY-USE CHEMICALS AND DRUGS (OCTOBER-DECEMBER 1978)

--Two recent publications co-authored by Dr. Fred Meyer and Ms. Rosalie Schnick of the National Fishery Research Laboratory, La Crosse, concern the registration status of fishery-use compounds. One, "The Approaching Crisis in the Registration of Fishery Chemicals," is a summary of the registration status of various compounds as of January 1977. The second publication, "Registration of Thirty-three Fishery Chemicals: Status of Research and Estimated Costs of Required Contract Studies," is an up-to-date analysis of the registration requirements except for the escalating costs of studies. Copies are available by writing to the National Fishery Research Laboratory, LaCrosse, Wisconsin 54601.

--We are "home free" on the approval of three application forms that were submitted several months ago to the Food and Drug Administration (FDA). The two #1800 Medicated Feed Application forms which permit the purchase/use of medicated premixes containing sulfamerazine or oxytetracycline (Terramycin) have been forwarded to the Regions Laboratories. These forms which are valid indefinitely should be kept on file at each facility.

A companion form, #2656, for the Registration of Drug Establishment permits the preparation of medicated feeds on site. Copies of this form have been sent directly to the 114 hatcheries, centers, and laboratories that were listed. This form will have to be renewed annually, at the appropriate time, by each facility upon notification by FDA.

--Personnel from the Divisions of Fishery Ecology Research, National Fish Hatcheries, and Federal Aid, and the Office of Fisheries Assistance, attended a 1-day workshop on Chemical and Drug Registration matters at Harpers Ferry in late October. The purpose of the meeting was multifold -- namely:

- (1) To set the framework for a planning strategy that will prioritize FWS needs in the registration of specific fishery-use chemicals and drugs. The strategy will include the potential role and involvement of numerous FWS facilities and personnel and, in addition, will promote the coordination of research with other governmental agencies, universities, and industry, where appropriate.
- (2) The group also undertook the task of formulating a FWS policy statement (and guidelines) for cooperative agreements with industry in the Registration of Chemicals and Drugs for Fishery and Wildlife uses. These topics will be reported in greater detail in the coming months.

- Separate meetings were held with EPA and Penick Company officials to discuss the registration status of rotenone and to explore ways to settle the RPAR question (Rebuttable Presumption against Registration) of rotenone being a suspect carcinogen. Although rotenone is registered, the RPAR threat over the past 2 years has disrupted and otherwise delayed essential company and Service studies that are required to maintain registration. We expect a "read out" shortly from EPA. Their review should indicate deficiencies in the data at hand and thereby help determine our future course of action.

- Numerous inquiries are being received concerning proposed FDA guidelines on definitions of non-food fish categories for drug treatment purposes. The proposal, initiated by FWS more than 2 years ago, designates fish eggs, sac fry, fingerlings (as defined) and broodfish of edible cultured species as non-food fish (for the application of drugs and chemicals along with appropriate withdrawal times). The guidelines are in keeping with precedents already established in other classes of animals (baby pigs, chicks, turkey poults). A decision is expected within the near future.

A second proposal concerning the guidelines for the development of data on drugs for minor species (fish family classification, safety and residue tests) is contingent on the first proposal and, hence, is still some months away.

- We are awaiting further word from FDA for registering the use of formalin as a parasiticide and fungicide. Completed studies that have been submitted to date are believed to be adequate. However, the data packet is still in review by their Environmental Assessment Group. There also remains the problem of how to release FWS labeling data to interested drug manufacturers for marketing the chemical under the intended use.

- We have been notified by EPA that an Experimental Use Permit (EUP) will not be required for a proposed study next spring involving the use of a potential artificial imprintant, 2-phenylethanol (PEA). The Great Lakes Fishery Laboratory will test the hypothesis that larval sea lampreys that have been artificially imprinted will--as adults--home to an imprintant metered into a stream containing desirable spawning habitat.

- Last quarter we reported an EPA ruling that rhodamine B and fluorescein sodium (when used as tracer dyes to check waterflows, dilution rates, and distribution patterns did not constitute a pesticidal use, and therefore, would not require registration for these intended purposes. As the result of a followup inquiry to EPA, we have been notified that rhodamine WT is also included in the above ruling.

--An Investigational New Animal Drug Application (INAD) was submitted to FDA by the Abernathy Salmon Cultural Developmental Center of Longview, Washington, for the use of erythromycin phosphate in a pelletized diet. The test is intended to evaluate erythromycin treatment to combat bacterial kidney disease in fingerling and yearling pacific salmon. There has been no word yet on the INAD application submitted in September for the use of erythromycin phosphate to waterharden rainbow trout eggs at the Fish Genetics Laboratory, Beulah. Its purpose is to determine if the drug will prevent vertical transmission of the bacterial kidney disease organism. Harry Van Meter, Registration Liaison Officer, Division of Fishery Research, US Fish and Wildlife Service.

BOOK REVIEWS

The following are two perspectives of R. J. Robert's Fish Pathology. The first review, by Dr. Glenn Hoffman, lays out the subject matter. The second review, by Dr. S. F. Snieszko, offers a critical look at some of the chapters. This book will be a "must have" for fish pathologists. (ed.)

Roberts, R.J. (editor). Fish Pathology. Bailliere Tindall, 35 Red Lion Square, London WC, R 4S.G, £21.00. Also distributed by Lea & Febiger, 600 Washington Square, Philadelphia, Pennsylvania 19016, \$64.00.

This excellent, somewhat Scottish text, consists of 14 well illustrated and informative chapters:

1. The Aquatic Environment by A.L.S. Munro 1 - 12
2. The Anatomy and Physiology of Teleosts by A.E. Ellis, R.J. Roberts, P. Tytler 13 - 54
3. The Pathophysiology and Systematic Pathology of Teleosts by R.J. Roberts 55 - 91
4. The Immunology of Teleosts by A.E. Ellis 92 - 104
5. Neoplasia of Teleosts by Joan Budd, R.J. Roberts 105 - 113
6. The Virology of Teleosts by Janet Liversidge, A.L.S. Munro 114 - 143
7. The Parasitology of Teleosts by Ted Needham, R. Wootten 144 - 182
8. The Bacteriology of Teleosts by R.H. Richards, R.J. Roberts 183 - 204

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| 9. | The Mycology of Teleosts by R.H. Richards | 205 - 215 |
| 10. | Nutritional Pathology of Teleosts by C.B. Cowey, R.J. Roberts | 216 - 226 |
| 11. | Miscellaneous Non-infectious Diseases by R.J. Roberts | 227 - 234 |
| 12. | Laboratory Methods by A.M. Bullock | 235 - 267 |
| 13. | Therapy of Fish Diseases by C.J. Poupard | 268 - 275 |
| 14. | Husbandry and Management in Relation to Disease by C.J. Shepherd | 276 - 282 |

Most of the chapters are arranged in standard organ-system format, typical of medical and veterinary texts with considerable and welcome histopathology. The chapter on therapy seems a little skimpy. This well written book will be useful as a course text as well as diagnostic and research reference.

Glenn L. Hoffman, US Fish & Wildlife Service

Fish Pathology. R.J. Roberts, editor, and twelve coauthors.

Professional fish disease research workers and practitioners in fish diseases are the prospective readers for whom the book was written. The language is lucid and there is a minimum of jargon. The text is profusely illustrated with black and white photographs and nine tables of color photographs. I believe that some of the photographs were too much reduced in size to fit the plates and this resulted in loss of detail.

Now I should like to review some of the chapters. The list of references contains over 600 titles; the vast majority are written in English. Titles of some of the Japanese papers are English subtitles. Some of these papers must have been known to the authors only from the English summaries because the full text is in Japanese and this is not indicated. There are a few typographic errors in the German titles. The first use of erythromycin for the treatment of kidney diseases was not described in the paper by Snieszko and Griffin (1955) but in the paper by Wolf and Dunbar (1959) published in *Trans. Am. Fish. Soc.*, Vol. 88, p. 117-124.

The chapter "The Immunology of Teleosts" was reviewed jointly by D.P. Anderson and me. We believe that the existence of C-reactive protein in fishes is still not proven beyond any doubt. Also it is not yet clear if the hemolysins in blood of some fishes are enzymes, or weak antibodies requiring complement and ions of magnesium and calcium as indicated by Chiller in 1969. The book Fish Immunology, by D.P. Anderson, TFH, 1974 is not listed in the references.

The chapter on fish viruses was reviewed by P.E. McAllister. In his opinion the authors of this chapter attempted to bridge the gap between the lay worker and the professional researcher. The result is a compact text which provides an overview of the essentials, but which is oversimplified in some areas, potentially leading to erroneous conclusions, and professionally complex in others. The color illustrations are well done, but some citations refer to the wrong plate. The black and white histopathology sections suffer at times in loss of detail. The tables are generally well-conceived, but critical experimental conditions which affect the results are not included as a footnote. Considering the brevity of the description of each agent, or condition, the list of supplementary references would be helpful. Omitted are the viruses associated with tumors in fishes.

In the chapters on viral and bacterial diseases the so-called infectious dropsy of carp is not sufficiently explained. In 1930 Schaperclaus published his monographic work on Pseudomonas punctata as the cause of fish dropsy. Since that time some German and Soviet investigators described the presence of virus particles in the diseased fish. In 1972 Fijan reviewed the status of fish dropsy and described Rhabdovirus carpio as the cause of spring viremia of carp, and identified carp erythrodermatitis as another component of the disease complex called carp dropsy. Fijan's results have not eliminated bacteria of the Aeromonas punctata-hydrophila group as important pathogens of fishes, of other aquatic animals or even of people. Schaperclaus continues to this date his important studies on the nature and control of fish diseases caused by motile aeromonads. His methods of chemoprophylaxis are still in use. I should like to mention here that the name A. liquefaciens was given to this aquatic microorganism by Beijerinck in 1900 because it liquefied gelatin and not because it is histolytic as it is implied on p. 195.

Iodophors as agents used for disinfection of fish eggs are not mentioned in the chapter "Therapy of Fish Diseases."

Listing of these few omissions should not in any way reduce the value of this excellent book. It is remarkably free of errors, it is very well edited, attractive in appearance, and definitely deserves to be recognized as a very important textbook on diseases of fishes.

Concluding this review of Fish Pathology I wish to emphasize that this is a very well written and well organized text, it is up-to-date to about 1977, and is also very concise, perhaps too concise. It should be of great value to professional workers and students of fish diseases.

It is an invaluable text in the English language to veterinarians who wish to add fishes to their list of patients. It is a book written by fish pathologists and for fish pathologists.

S.F. Snieszko, Senior Scientist, US Fish & Wildlife Service

THE DEPARTMENT OF FISH PATHOLOGY OF
THE ALL-UNION RESEARCH INSTITUTE FOR POND FISHERIES
(VNIIPRKh) NEAR MOSCOW

The department is headed by Dr. V.A. Musselius and consists of 20 people of which 14 are research scientists with 6 technical assistants. Three researchers are virologists now studying viral gill necrosis of carp. Six are studying the parasitic infections of cage cultured fishes, exotic cultured fishes (Ictalurus, Ictiobus, chinese carps, etc.), and the immune response of parasitized carp. One is studying the fungus swim bladder disease of rainbow trout, a new disease in the USSR. One group is starting a new section in bacterial diseases. (Glenn L. Hoffman)

PARASITE NEWS

RODLET CELLS OR RHABDOSPORA THELOHANI?

This question was answered very well in 1906 by Marianne Plehn (Secretary cell or parasite?, Anat. Ang. 29: 152-157; English transl. in Language Services Br., Nat. Marine Fish, NOAA, U.S. Dept. Comm., Washington, D.C. 20235). However, in the past 14 years many papers have been written on this subject without convincing proof of either argument. Of the most recent findings on the subject are: (1) John Modin, 1976, (Pers. Comm., Calif. State F&G) has found Pleistophora spores in rodlet cells, (2) C.D. Anderson, R.J. Roberts, K. MacKenzie, A.H. McVicar, 1976 (J. Fish Biol. 8: 331-341) describe various stages of it and (3) Carol Morrison and P. H. Odense, 1978 (J.F. Res. Bd. Canada 35: 101-116) describe its histochemistry and review the literature, freshwater and marine; their conclusion is that, because of its wide occurrence and the presence of early and secreting stages, it is likely a normal cell of fish. Equally as convincing is that the late R.R. Kudo did not include Rhabdospora thelohani in the 1971 edition of his "Protozoology." For further information do not write to Dr. G.L. Hoffman, U.S. Fish and Wildlife Service, Fish Farming Experimental Station, P. O. Box 860, Stuttgart, AR 72160.

AN IDEA

L. Horwath, M. Lang, and G. Tamas, Warmwater Fish Hatchery, Szachalombatta, Hungary (Bamidgeh 30(3): 80-84) found that 4 ppm copper oxychloride = $3 \text{ Cu}(\text{OH})_2 \cdot \text{CuCl}_2$ was effective in controlling Trichodina and Chilodonella on grass carp larvae. It was not toxic to the fish larvae at 40 ppm. This chemical has also been used as an algicide. For further information consult the article. Submitted by G.L. Hoffman, U.S. Fish and Wildlife Service, Fish Farming Experimental Station, P.O. Box 860, Stuttgart, Arkansas 72160, USA.

MYXOSOMA, MYXOBOLUS, AND THE GLYCOGEN VACUOLE

There is still controversy among myxosporidiologists regarding the "validity" of the glycogen vacuole as a generic characteristic. The divided opinion is probably caused because the "vacuole" is difficult to demonstrate in some, probably few, Myxobolus species, and, because it contains stored food, it tends to become less obvious in older spores of some Myxobolus species. Incidentally the "vacuole" can, at least sometimes, be demonstrated with glycogen stains in histologic sections; we used Best's Carmine method. Imperfect as the "vacuole" is (and as we are), and because there are so few useful characteristics for separating genera of Myxosporida, it is not wise to dump the glycogen vacuole now. In support of this thesis is a recent publication of S.A. Podlipaev of the USSR. The summary of his 1974 paper, "Polysaccharides in the spores of myxosporidians of the family Myxobolidae", Parasitologia 8(6): 535-542 follows:

The paper deals with the ways of discovery of the iodophilous vacuole in spores of myxosporidians of the family Myxobolidae. Phase-contrast microscopy reveals the vacuole only after a certain period of time. The results of the treatment of spores of Myxobolus mulleri, M. bramae, M. dispar, M. albovi, M. exiguus, M. nemeczeki, Thelohanellus oculi-leucisci and Henneguya psorospermica with Lugol, the PAS reaction and following the A.L. Shabadash method are discussed. During a spore formation the number of polysaccharides in it increases. When spores are outside of the host polysaccharides of the iodophilous vacuole are gradually used. The iodophilous vacuole is regarded as a depot of reserve nutrient such as glycogen in a spore. The opinion is supported on the reality of the iodophilous vacuole as a morphological formation in spores of Myxobolidae and the necessity to use it in the systematics. For further information contact Prof. S.A. Podlipaev or Dr. G.L. Hoffman, U.S. Fish and Wildlife Service, Fish Farming Experimental Station, P.O. Box 860, Stuttgart, Arkansas 72160, USA.

COMMON OR UNCOMMON?

In 1939 Dr. Fred Fish described Myxobolus inornatus from tumor-like lesions at the bases of the fins of largemouth black bass from a Montana fish hatchery. In 1978 Rod Horner rediscovered this parasite in an Illinois fish hatchery. This year I discovered a stored 1968 specimen from New York Creek, Henderson County, Texas. These are the only records at hand. However, if this species is (was) present in three widely separated states I think it must be more prevalent than indicated. I would appreciate receiving additional records or specimens of it. 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.

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 Committee members no later than the 1st of July to be included in the next quarterly issue. The NEWSLETTER Committee members include:

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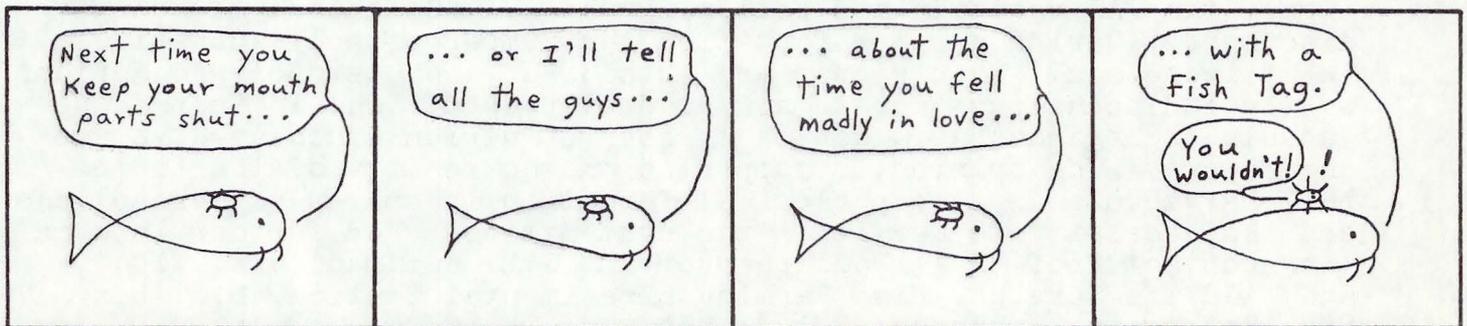
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