Fish Health Section Newsletter

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MICHIGAN DNR ORDERS FISH DESTROYED

Approximately 500,000 yearling rainbow trout and 2.1 million young coho salmon will be destroyed by the Michigan Department of Natural Resources this spring following discovery of a whirling disease infection. In a unilateral action by the state of Michigan to prevent further spread of the disease in the Great Lakes, the entire fish population of the DNR's Sturgeon River Hatchery near Indian River, Michigan has been ordered destroyed by DNR director, Howard A. Tanner. One hundred thousand of the coho have already been shipped from the Sturgeon River Rearing Station to the DNR's Platte River Anadromous Fish Hatchery last fall in preparation for release this spring. All of the infected fish, valued at $300,000, will be disposed of as soon as a suitable land fill area can be located by the DNR's Solid Waste Management Division.

The destruction of these fish will mean a 35 percent reduction in the number of coho salmon stocked this year in Lake Michigan and Lake Huron. The loss of the rainbow trout will reduce the the stocking of Michigan's inland waters by approximately 80 percent. Translated into sport fishing dollors, Michigan estimates the overall impact to amount to over $10 million.

The parasitic disease known as whirling disease, caused by Myxosoma cerebralis, was detected during routine annual fish health examinations conducted by DNR fish biologists in mid-March prior to the stocking of the fish. The outbreak was subsequently confirmed by the U.S. Fish and Wildlife Service Laboratory at Genoa, Wisconsin. Subsequent checks confirmed the presence of the disease in wild fish in the Sturgeon River from which the hatchery obtains its water. The disease causes severe crippling when contracted by young fish. Outbreaks present the greatest threat to fish hatchery operations because of the difficulty encountered in any attempts to eradicate the parasite's spores from earthen facilities. Prevention is presently the only means of effectively controlling this disease and for this reason the decision was made not to stock the fish. Whirling disease was first discovered in Michigan in 1968 in the Tobacco River near Harrison.

Additional epidemiological investigations are now underway to determine the source of the disease. Samples have been collected from nearby fish farms and fish-out ponds. The Sturgeon River facilities will be cleaned and disinfected as soon as the fish are buried. Because of the design nature of the hatchery facilities and water supply, production will not be resumed for the foreseeable future.

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A Presidential Message 1975

I would like to express my thanks to each member of the Fish Health Section that supported me for this position, and I will attempt to do the job to the best of my ability.

In regards to the committee chairmen and members of the various committees, I have tried to select a well-balanced group of members. I would also like to encourage members that were not selected to still put forth a serious effort and offer their assistance and comments wherever they feel would be appropriate. All committees are listed on the following page of the Newsletter and should be noted by all members.

I believe we have several areas that should be worked on this year. Probably the most important area is that of professional certification. I realize that many of you people would like to offer your comments concerning this matter and I would encourage each one of you to voice your opinion to Fred and his committee to enable them to have a better understanding of your concerns. I would hope that before the end of this year we will have this matter resolved.

Another area that each member should work on is that of obtaining additional membership in the FHS. Each member should strive to solicit one more member into the Section.

Since we will not have a national meeting this year, I would like to see the FHS represented and discussed at regional meetings as much as possible. I know that many of the members attend meetings with other fishery researchers and these meetings would be opportune times to discuss our Section and the role that we play in the area of fish pathology.

In closing, I would like to state that I would encourage each member to take an active part in this organization. I realize that we are a rather young Section and if we are to survive and prosper, each one of you should offer your contributions to help this cause.

Mr. Courtney C. Gustafson, President

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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. 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 a committee member no later than the 15th of February, May, August, or November to be included in the following quarterly issue.

Dr. Robert A. Busch (Editor), Fish Pathology Laboratory, Bldg. 48, Humboldt State University, Arcata, California 95521
Mr. Charles R. Berry, Jr. (eastern U.S.), Department of Fisheries and Wildlife Science, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24060
Mr. Gary W. Camenisch (central U.S.), 666 Prinrose Lane, Springfield, Missouri 65804
Dr. Trevor P. T. Evelyn (Canada and international), Pacific Biological Station, P.O. Box 100, Nanaimo, British Columbia, V9R 5K6, CANADA
Dr. Richard A. Heckmann (western U.S.), Zoology Department, 143 Wid B, Bringham Young University, Provo, Utah 84601

1975 Standing Committees for the Fish Health Section

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Robert Busch, Newsletter Committee
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Richard Stroud
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COMMITTEE NEWS & REPORTS

ANNUAL FINANCIAL REPORT - 1974

1974 Income	
Membership Dues (180 members, $2.00 @).....	$360.00
1973 Treasury Balance.....	52.47
Interest on Savings Account (CY 1974).....	8.28
Total 1974 Income.....	$420.75
1974 Expenditures	
Postage.....	$164.00
Office Supplies.....	122.50
Printing Costs	
Newsletter.....	87.39
FHS Denver Workshop Announcements and Programs	41.72
HR6397 Opinion Poll and Materials.....	12.25
Total 1974 Expenditures.....	$427.95

(for comment or further information contact Mr. Ivan McElwain, Sec.-Tres., P.O. Box 917, Fort Morgan, Colorado 80701)

MEMBERSHIP AND BALLOTING COMMITTEE - The Fish Health Section needs additional new and renewal memberships. The current membership roles of FHS stand at 187 but only 130 of these are held in good standing as of 3/1/75. The total membership count is an increase of 13% over that of July, 1974, but the Committee is working to increase this nember by 25% in 1975. I think we must encourage people from other areas of aquatic animal health to join our group. I suggest that all current members encourage individuals interested in the health of fish, shellfish, crustaceans and other fresh water and marine animals to join our organization. The more active members we have and the more different areas of interest they represent, the stronger the Fish Health Section will be.

This Newsletter is being sent to all 1974 members. However, only those held in good standing will receive future issues. Memberships that are delinquent will receive back issues as they are paid. An application form for new or renewal membership is to be found on the last page of this Newsletter. (for comment or further information contact Dr. John A Plumb, Chairman - Membership and Balloting Committee, Department of Fisheries and Applied Aquaculture, Auburn University, Auburn, Alabama 36830)

TECHNICAL PROCEDURES COMMITTEE - The final draft of the proceedings of the 1974 Denver FHS/AFS Workshop have been reveiwed by Dr. Snieszko. Pending last minute corrections and revisions, the proceedings, entitled "The Suggested Procedures for the Detection and Identification of Certain Infectious Diseases of Fishes", should be going to press soon. (for comment or further information contact Mr. David W. McDaniel, Chairman - Technical Procedures Committee, 7313 Castle Road, Manassas, Virginia 22110)

PROFESSIONAL NEWS & VIEWS

WHIRLING DISEASE DETECTION - At our FHS/AFS meeting in Denver last summer, it was suggested that the two methods currently being used for detecting spores of Myxosoma cerebralis be compared. The first method was the digestion method developed at the Eastern Fish Disease Laboratory and the second method was the plankton centrifuge method developed at the Benner Springs Research Station in Pennsylvania.

This comparison is currently being conducted by the research personnel of the two research centers involved. The results to date indicate that at higher levels, clinical signs 2500/head of disease, both methods produce comparable results. At the current time, lower levels of infection are being examined and the results will be published later. The plankton centrifuge technique was published in the Journal of Wildlife Diseases, Vol. 11, No. 1, January, 1975, p. 54-57. Reprints of this article are available upon request from the Benner Spring Fish Research Station. (for comment or further information, contact Mr. Courtney C. Gustafson, 118 Nittany Street, Pleasant Gap, Pennsylvania 16823)

HATCHERY DISEASE SURVEY IN SOUTHEAST - As a normal function of the Southeastern Cooperative Fish Disease Project, Auburn University, Auburn, Alabama, fish stocks on all state fish hatcheries in Alabama, Arkansas, Florida, Georgia, Louisiana, Kentucky, Maryland, South Carolina and Tennessee were surveyed for diseases between April and September, 1974. A total of 19 different fish species on 31 hatcheries were checked, including salmonids, centrachids, ictalurids, cyprinids, true basses and others.

Five to ten specimens of each species or lot of fish on each hatchery were examined virologically, bacteriologically and parasitologically. None of the fish viruses were isolated. However, it should be taken into consideration that the numbers of fish checked do not compose a statistically sound sample size. Channel catfish virus neutralizing activity was detected in serum from channel catfish on several hatcheries; only one of these hatcheries had a previous history of CCV, while others had no known history of the disease. The primary bacterium isolated was Aeromonas liquefaciens, although Aeromonas salmonicida was isolated from trout on several hatcheries. All of these isolates came from symptomatic fish. Many external and internal parasites were found and most populations had parasitic infestations of some degree. The most frequently observed external parasites were Trichodina and monogenetic trematodes on the gills. Few fish populations were free of either of these groups. Henneguya was observed on the gills of specimens from most catfish populations. Adult or larval bass tapeworms (Proteocephalus) were found in nearly every largemouth bass population with the degree of severity ranging from minimal to serious. Many hatcheries in the Southeast have a chronic problem with larval tapeworms in the gonads of adult bass.

Though many parasites were identified in these hatchery inspections few were of any consequence. The most striking result of these disease examinations was the lack of "reportable disease organisms" which were outlined and classified by the Fish Disease Committee of the Southern Division, American Fisheries Society. (for comment of further information contact Dr. John A. Plumb, Department of Fisheries and Applied Aquaculture, Auburn University, Auburn, Alabama 36830)

IPN AND ERM IN ARIZONA - Free-ranging rainbow trout (15.5 to 21.25 inches in size) from Lake Mohave, Arizona have been found to be carriers of IPN virus. Laboratory examinations of individual fish so far have shown an approximate incidence of 18.5%. The data collected is part of a disease survey being conducted by the Colorado River Wildlife Council on fish of the lower Colorado River Basin. The ERM bacterium was also isolated from one of the sampled fish. (for further information or comment, contact Mr. Ivan B. McElwain, Fish Disease Control Center, P.O. Box 917, Fort Morgan, Colorado 80701)

ERM MOVING EAST - The enteric redmouth organism (ERM) was isolated from 6-8 inch rainbow trout from a commercial trout rearing facility in Nebraska. Low level mortalities were occurring in the lot but subsided following treatment. The is the first known incidence of ERM in Nebraska. (for further information or comment, contact Mr. Ivan B. McElwain, Fish Disease Control Center, P.O. Box 917, Fort Morgan, Colorado 80701)

FURUNCULOSIS IN A NATURAL POPULATION - Aeromonas salmonicida has been isolated and serologically confirmed from a sexually mature feral brook trout population in Montana. The bacterium was also isolated from sexually mature kokanee salmon ranging in a different river than the brook trout population. To our knowledge, these are the first isolations of the furunculosis organism from naturally reproducing salmonids in the intermountain area. Continued surveillance of these populations is planned. (for further information or comment, contact Mr. Ivan B. McElwain, Fish Disease Control Center, P.O. Box 917, Fort Morgan, Colorado 80701)

DISTRUCTION OF HENNEGUYA INFECTED CATFISH - Gill tissue of channel catfish fingerlings received from a federal fish hatchery in Kansas was heavily infected with Henneguya spp. Histological examination has shown the parasite to be the interlemellar form, the one reported to be the most serious. Although the infected fish were experiencing no significant mortality, they were destroyed. (for further information or comment, contact Mr. Ivan B. McElwain, Fish Disease Control Center, P.O. Box 917, Fort Morgan, Colorado 80701)

EPISTYLIS - A chromic sublethal Epistylis infestation in several North Carolina rivers and lakes is being studied by biologists at Duke Power Company. The incidence of parasitism is highest in the late summer and early fall and has been found in many species, especially the white bass and stripped bass. The degree of infestation per individual fish is being quantified according to the percent of body surface covered with lesions. A sampling program is being carried out to identify possible environmental factors stimulating the outbreak. For more information or comment, contact Mr. Don Cloutman, Duke Power Environmental Laboratory, Huntersville, North Carolina 28078.

VACUUM INFILTRATION METHOD OF IMMUNIZATION - Immunization of large numbers of small fish is difficult at best in present terms of administration. The problem with killed prepations which are not readily taken in by fish systemically, is how to administer them efficiently and economically. Injection is impractical on small fish or on large scale operations. Oral immunization has been successful in some cases, but problems still exist. Wildlife Vaccines, Inc. of Denver Colorado has introduced a method of immunizing fish by a process called vacuum infiltration. The principal involves placing the fish in a vaccine solution in a vacuum chamber then the atmospheric pressure is reduced to 5mm Hg. The vacuum is then quickly released to normal atmospheric pressure. This process, with the aid of membrane solvents, forces the vaccine through the gill membranes and into the blood. The method has been tested and prefected at the WFDL. Tests are still in the experimental phase but field trials are planned for the summer of 1975. Additional tests are being conducted at Oregon State University and the Fish Disease Control Laboratory at Fort Morgan, Colorado. (for more information or comment, contact Dr. Donald F. Amend, Western Fish Disease Laboratory, Building #204, Naval Support Activity, Seattle, Washington 98105)

PRESENT STATUS OF VIRUS VACCINES - At present there are several laboratories developing attenuated fish viruses for potential vaccines. Dr. J. L. Fryer, Oregon State University, has a partially modified IHN virus which shows promise. Dr. Malsberger, Leigh University, and Dr. Wolf, EFDL, are presently working on a modified IPN virus. There are indications that these attempts have been partially successful. However, thare are no attenuated fish viruses to my knowledge that will pass USDA Standards for licensing, and it will probably be years before we have a modified virus vaccine for fish use. Genetic markers, stability of the modified virus (i.e. inability to revert back to a virulent state with backcrossing), safety of the vaccine to target and non-target species, EPA regulations, etc. are major obstacles to be overcome before any life virus vaccines will be approved for commercial production.

The live virus vaccines have proven to be the most effective in other areas of medicine and in the long term this will probably be true in fish medicine. However, there are many effective killed virus vaccines and other problems with USDA are much less than with live virus vaccines. In the short term, our best hope of a virus vaccine is with a killed preparation. The WFDL has been working cooperatively since August 1974 with a veterinary biological company (Wildlife Vaccines, Inc., Denver, Colorado) developing vaccines for fish. We are working on killed bacterins (vibrio and furunculosis) and killed vaccines (IHN and IPN). (for comment or further information contact Dr. Don F. Amend, Western Fish Disease Laboratory, Building #204, Naval Support Acitivty, Seattle, Washington 98105)

GREAT LAKES FISH DISEASE CONTROL POLICY IN FINAL STAGES OF DEVELOPMENT - The recent outbreak of whirling disease in Michigan has spurred activity in the development of a comprehensive fish disease control policy for the Great Lakes basin. A draft policy has been distributed to the Great Lakes Agencies for review by the Fish Disease Control Committee of the Great Lakes Fishery Commission. This policy will receive final touches at the next committee meeting scheduled for May 8-9 at Commission headquarters in Ann Arbor, Michigan. The primary purpose of the policy is to organize and coordinate agency fish disease control programs and procedures. Since the Great Lakes Fishery Commission is only an advisory group, implementation of the policy depends upon the development of legislation, regulations, and programs by each member agency. (for comment or further information contact Mr. James W. Warren, P.O. Box 252, Genoa, Wisconsin 54632)

NATIONAL FISH HEALTH AUTHORIZATION LEGISLATION - Congresswomen Leonor K. Sullivan D-Missouri, Chairwoman of the House Merchant Marine and Fisheries Committee has reintroduced legislation to estabolish programs for the protection of the Nation's fishery resources against the dissemination of serious diseases of fish and shellfish. The bill, H.R. 1083, was introduced in January. Personal views regarding the necessity for such legislation (pro or con) together with data justifying your position is valuable to the deliberations of the Committee and should be forwarded as soon as possible to:

Congresswoman Leonor K. Sullivan, Chairman
Merchant Marine and Fisheries Committee
Room 1334, Longworth House Office Building
Washington, D.C. 20515

ELECTROSHOCK PHYSIOLOGY - A study of the effects of electroshock on the survival and physiology of fish is being conducted at Virginia Polytechnic Institute. Results to date show post-shock changes in corticoid and lactic acid levels, plasma glucose content and white blood cell count of rainbow trout blood. Recovery time is different for each parameter. Other hemal characteristics, androgen, calcium, magnesium, and plasma protein levels showed no significant change. ECG's and buccal cavity pressure measurements showed an increase in breathing amplitude following shock. Other studies indicate that mortality increases with duration of exposure to the electrical current and with frequency of the pulse. If anyone knows of results of similar studies or has any comments on the subject, please contact Mr. Roy Whaley, Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.

MEETINGS & MISCELLANY

INTERNATIONAL SYMPOSIUM ON OZONE FOR WATER AND WASTEWATER TREATMENT - This meeting is scheduled for May 11-14, 1975 in Montreal, Canada. Further information may be had by writing to the International Ozone Institute, 24 Central Avenue, Waterbury, Conn. 06702.

INTERNATIONAL HYDROMICROBIOLOGY SYMPOSIUM - This meeting is scheduled for June 2-4, 1975 in Smolenice, CSSR. For further information contact I. Daubner, Limnobiologisches Institut der Slowakischen Akademie der Wissenschaften, ul. Obrancov mieru 1/a, 885 34 Bratislava, Czechoslovakia.

TISSUE CULTURE ASSOCIATION - This meeting is scheduled for June 2-5, 1975 in Montreal, Canada. For further information contact Dr. R. M. Nardone, Department of Biology, Catholic University of America, Washington, D.C. 20017.

INTERNATIONAL CONFERENCE ON INVERTEBRATE TISSUE CULTURE - This meeting is scheduled for June 5-8, 1975 in Mont Gabriel, Quebec, Canada. For further information contact Dr. E. Kurstak. Department of Microbiology, Faculty of Medicine, University of Montreal, P.O. Box 6128, Montreal 101, Canada.

WESTERN FISH DISEASE CONFERENCE - The 1975 Western Fish Disease Conference meeting is scheduled for June 25-26, 1975 at the University of Idaho. The meeting will retain the format and style that has made it one of the more popular vacation junkets and watering holes of many western fish disease types. For further comment and information contact Dr. George W. Klontz, Department of Fisheries, School of Forestry, Wildlife, and Range Science, University of Idaho, Moscow, Idaho 83843.

WILDLIFE DISEASE ASSOCIATION - The 1975 Wildlife Disease Association annual meeting is scheduled for August 21-23, 1975 at the Univeristy of Guelph. Two one-half day sessions on diseases of fishes are

currently planned. A session on microbiology will be chaired by Dr. Emmett B. Shotts and a session on parasites and pathology will be chaired by Dr. Harry W. Huizinga. The final deadline for receiving papers and abstracts is May 15, 1975. For further information and the submission of papers and abstracts, contact Dr. Harry W. Huizinga, Department of Pathology, Ontario Veterinary College, Guelph University, Guelph, Ontario, Canada.

INTERNATIONAL WILDLIFE DISEASE CONFERENCE - This meeting is scheduled for August 26-29, 1975 in Munich, Germany.

CHINOOK SALMON USED IN BLOOD RESEARCH - Jules A. Gladner and Patricia A. Murtaugh of the National Institute of Arthritis, Metabolism and Digestive Diseases have found that the chinook salmon has two blood coagulating systems; one similar to that found in humans and another, simpler one, resembling the system in lower animals. They believe this to be the first time both systems have been found in a vertebrate. Another finding, according to the scientists, is that salmon plasmin (an enzyme found in the blood plasma) can remain active at temperatures of -20°C; below the range where human plasmin remains active. If the factor can be isolated from the salmon, it may have proctical applications in human medicine for dissolving blood clots. (Bioscience, 24(5): 299.)

DR. JOHN ROSS RETIRES - Dr. John Ross, bacteriologist at the Western Fish Disease Laboratory, retired February 28, 1975 after 20 years of fish disease work. John joined the WFDL in 1955 and is most noted for his work on the bacterial pathogens of salmonids. Perhaps he is best known for his extensive work on Enteric Redmouth (Hagerman strain) and his colleagues often affectionately refer to it as "Ross's Redmouth". A retirement party was held March 21, 1975. John and others before him have left us with a rich legacy of basic knowledge and understanding of the diseases of fishes. There are no plans of filling the position he is vacating at this time.

MR. ARTHUR D. BRADFORD - On December 17, 1974 Arthur passed away at his residence in Pleasant Gap, Pennsylvania. Mr. Bradford had been a mamber of the Fish Health Section since its inception and a member of the American Fisheries Society for many years.

Arthur joined the Pennsylvania Fish Commission in 1942 as a fishery pathologist. With the building of the Benner Spring Fish Research Station in 1953, Art was made Chief Pathologist. In 1970 he was made Chief of the Division of Fisheries, a position he held until his retirement in February of 1974. Art was well known for his early work in the field of fish pathology. In the early 1950's he did pioneer work in the field of fish tissue culture. He also collaborated with Dr. Snieszko and Dr. Hoffman at the Eastern Fish Disease Laboratory on the early detection of whirling disease.

Arthur is sadly missed by his colleagues in the area of fish pathology and it is most unfortunate that his career had to abruptly end at the age of 54. -Gus-

MICHIGAN DNR - continued from page 1

Because of the magnitude of the problem and its long term impact on the Great Lakes fishery, Michigan is seeking assistance from neighboring Great Lakes states, Canada, and the U.S. Fish and Wildlife Service. The Great Lakes Fish Disease Control Committee is helping to coordinate the search for both technical assistance and for stocks of fish that can be reallocated to fill the gap created by this outbreak. (for comment or further information contact Mr. James W. Warren, P.O. Box 252, Genoa, Wisconsin 54632)

AFS Fish Health Section membership fees for calendar year 1975 are now due. Please fill out the attached blank for either new or renewal memberships. Annual dues in the amount of $2.00 are payable by check or money order made out to Fish Health Section/AFS. Mail your payment with the completed application form as soon as possible to:

dent 4-28-75

Mr. Ivan B. McElwain, Sec.-Tres.
Fish Health Section/AFS
P.O. Box 917
Fort Morgan, Colorado 80701

----------Detach and return with payment----------Detach and return with payment----------

Name:_____

Address:_____

_____

City:_____ State:_____ Zip:_____

Fish Health Section membership is open only to individuals who have paid their current AFS membership fees. AFS membership applications are available from the Secretary-Treasurer or Chairman of the Membership Committee.