FISH HEALTH SECTION Newsletter

AFS

73-4

Dec. 1973

BULLOCK, PLUMB, WARREN, MEYER

The 1974 election results have been reported by the Membership and Balloting Committee. Dr. Graham L. (Pete) Bullock, vice-president last year, was elected President for 1974. Dr. Bullock, Research Microbiologist at the Eastern Fish Disease Laboratory, Leetown, West Virginia, is presently on sabbatical at Oregon State University in the Microbiology Department. Vice-President for this year is Dr. John A. Plumb of the Department of Fisheries and Allied Aquacultures, Agricultural Experiment Station, Auburn University, Auburn, Alabama. James W. Warren, Hatchery Biologist for the Bureau of Sport Fisheries and Wildlife at Genoa, Wisconsin was voted to a second term as Secretary-Treasurer and Dr. Fred P. Meyer, recently appointed Director of the Fish Control Laboratory at LaCrosse, Wisconsin, won the balloting for Chairman of the 1974 Nominating Committee.

73-4

Congratulations are extended to the new officers. An invitation is also extended to each officer to submit messages to the members, through the Newsletter. Information concerning naming of members to standing committees for 1974 will be presented in the Newsletter when available.

Committee Activities

F.H.S. AFS

The projects of the Technical Procedures Committee for 1973 were directed towards three objectives. These were chosen with the idea that they would lay the groundwork for future committee efforts. Specific projects were: 1. the development of a format by which standard procedures could be developed for the detection and isolation of fish disease agents and diagnostic methods for specific diseases; 2. the development of guidelines for classifying specific fish diseases based on potential impact on cultured and natural fish populations; 3. determining the feasibility of adopting the EPA system of delineation and coding of major and minor river basins for use in fish disease work.

After committee members finished their assignments, a draft proposal covering each project was compiled and sent to each committee member for final review. Suggested changes were incorporated and final reports written. These project reports were combined into a Committee Report which was submitted to President Fryer with the Committee's recommendation that the Fish Health Section adopt the suggested proposals. The recommendations were that: 1. the Fish Health Section adopt the EPA storet system of delineation and coding of major and minor river basins in the United States; 2. the Fish Health Section adopt the Committee's format for developing standard procedures for the detection and isolation of fish disease agents, and diagnosis of fish diseases; 3. the Fish Health Section adopt the Committee's guidelines for classifying specific fish diseases based on potential impact on cultured and natural fish populations.

David W. McDaniel, Chairman
Technical Procedures Committee

Committee Activities

The Professional Standards Committee spent the past year trying to define who qualifies as a professional fish disease specialist and how that person should be recognized. It was decided that the name "fish pathobiologist" most accurately identifies our professionals. The term pathobiology has a broader and more comprehensive definition than pathology and implies structural and functional differences. This committee urges all members to unite and accept the name "fish pathobiologist".

The proposal now is that people interested in certification must first become certified as fisheries scientists by the AFS Board of Professional Certification, then the FHS Professional Standards Committee will determine if the applicant qualifies as a fish pathobiologist. A 10-year program is being prepared whereby requirements for certification would become more stringent with time. This procedure will not conflict with AFS Certification but must be ratified by the parent society. More details will appear in this Newsletter as they become available. We hope to have the program in operation by 1975.

Donald F.Amend, Chairman
Professional Standards Committee

Rucker Ratiocinates Retirement

Dr. Robert R. Rucker, well known and respected stalwart in the fish disease field, is retiring on December 28, 1973 after 36 years of federal service.

Dr. Rucker was educated at the University of Washington receiving his B.S., M.S., and Ph.D. degrees in 1935, 1937 and 1944 respectively. His federal service career began in 1936 as a Helper in Fish Technology with the Dept. of Commerce, Branch of Commercial Fisheries. Working for the Dept. of Commerce through 1939, he spent two summers as a Fish Culturist at Yellowstone and then was promoted to Assistant Biological Aide at Seattle. In 1940, Dr. Rucker joined the Dept. of Interior, Bureau of Fisheries and began working on fish diseases under the tutelage of Dr. Fred Fish. In 1945, because of the war, he spent part of that year at College Park, Maryland as a bacteriologist and then returned to Seattle as an Aquatic Biologist under Dr. Fish. Dr. Rucker went to Corvallis, Oregon in 1950 to conduct a survey of the Willamette River system and returned during that same year to become Director of the Western Fish Disease Laboratory. He has been Director ever since and, as most FHS members probably know, has made a significant contribution to the understanding of gas bubble disease during this time. And how many Western Fish Disease Conferences are held in which Rucker's Pucker is not discussed? Dr. Rucker is presently a member of the AFS and the FHS.

Hearty best wishes are extended for a pleasant and productive retirement, Bob, as it's rumored you'll likely continue your studies on gas bubble disease after retirement.

The NEWSLETTER of the Fish Health Section of the American Fisheries Society is published four times annually in accordance with Section objectives. Use of company or trade names does not constitute endorsement but serves to keep members informed. NEWSLETTER contributions should be sent to a committee member no later than the 15th of January, April, July or November to be included in issues that follow these respective dates.

Newsletter Committee:
Dennis Anderson, Chairman and Editor, P.O. Box 252, Genoa, WI 54632
Dr. Chris Frantsi, Fish Disease Lab., RR#6, Fredericton, N.B., E3B 4X7, Canada
Chris Jensen, Oregon Game Commission, P.O.Box 3503, Portland, OR 97208
Joseph McCraren, Warm Water Hatchery Biologist Center, Tishomingo, OK 73460
Doug Mitchum, Wyoming Game & Fish Research Lab., Box 3312, Laramie, WY 82071

Professional News & Views

1. The Purdue Fredrick Co. is reportedly applying for FDA CLEARANCE for Betadine, a PVP-iodine compound, for use in disinfecting fish eggs. This compound is proving to be just as effective as, and much less toxic than, another iodophor which has been used widely for egg disinfection. Treatment with Betadine is recommended at 100 ppm iodine for 10-15 minutes at pH above 6.0. (For further information contact: Donald F. Amend, Research Microbiologist, Western Fish Disease Laboratory, Bldg. # 204, Naval Support Activity, Seattle, WA 98115)

2. TRITIUM IRRADIATION of rainbow trout during embryogenesis has been shown to result in suppression of immune response to Columnaris infection during subsequent years in the life of the fish. Based on results from standard tube agglutination tests, a significant suppression of antibody development occurred in juvenile and yearling groups. Tritium is a major contributor to low-level radioactivity in the effluents from nuclear steam generating power plants, but is presently considered not harmful. Because of the projected substantial increase of such power generation in the near future, the possibility that otherwise harmless exposures to radiation actually suppresses the immune response in fish could be of considerable significance. (For further information contact: C. Dale Becker, Ecosystems Dept., Pacific Northwest Laboratories, Battelle Memorial Institute, Richland, WA 99352)

3. VIBRIO VACCINE tests in Oregon have previously shown that humoral antibody is formed when fish are vaccinated by injection but not when vaccinated orally. Since either type of vaccination has provided protection against natural Vibrio infection, studies were conducted to see if the protective mechanism differs with the differing vaccination types. Again both methods protected fish that were challenged naturally but orally immunized fish were not protected when exposed by intramuscular injection. Since these tests suggest that local antibody is involved in protecting orally immunized fish, studies now in progress are designed to test for cellular immunity. (For further information contact: Chris Jensen, Hatchery Coordinator, Oregon Game Commission, P.O. Box 3503, Portland, OR 97208)

4. LEGISLATION AUTHORIZING the formation of an Idaho Food Fish Commission has been drafted. The Commission would represent commercial food fish farmers, fish egg producers and fish processors in the state. It would funded by an annual assessment levied and imposed on each pound of fish produced and/or processed and each 1000 eggs produced in the state. A significant portion of the draft involves fish health and includes the licensing of private fish culture and/or disease specialists. The steering committee for the formation of the Commission has assisted in organizing a survey that led to the publication of " A Survey of Fish Health Management in Idaho " by George Klontz, Professor of Fisheries Management, University of Idaho, Moscow, ID 83843. (For further information about the legislation and copies of the publication contact Dr. Klontz)

5. A kill involving over 500,000 lbs. of AMERICAN EELS occurred during July and August on the St. Lawrence River between Montreal and Quebec City, Canada. The mortality was attributed to poor environmental conditions in the river leading to a fatal bacteremia. All internal organs showed various degrees of degeneration and necrosis. An antimortem release of bile, attributed to bacterial disruption of gall bladder membranes, colored the entire viscera yellow. Comments on this condition would be appreciated by Dr. Frantsi. (Contact: Dr. Chris Frantsi, Environment Canada, Fisheries and Marine Services, Fish Health Lab., RR#6, Fredericton, N.B., E3B 4X7, Canada)

6. The FISH DISEASE COMMITTEE of the Colorado River Wildlife Council met in Reno in late November. The purpose of the meeting was to review hatchery disease inspections completed in accordance with the Council's Fish Disease Policy. Fify-two private, state and federal hatcheries have been inspected during this year and none of the fish pathogens listed on the Policy were detected in any of these inspections. (For further information contact: Ivan McElwain, Hatchery Biologist Laboratory, P.O. Box 186, Springville, UT 84663)

cont. from page 3

7. The FIRST MEETING of the Great Lakes Fish Disease Committee was conducted at Ann Arbor, Michigan on October 25th. James Warren was selected to chair the committee and the Genoa, Wisconsin Hatchery Biologist's Laboratory was chosen as the clearing house for fish disease information for the Great Lakes basin. Initial objectives of the committee, as decided upon during the meeting, are to describe the need for fish disease control and to draft, for consideration by the Great Lakes Fishery Commission, recommendations on the technical and practical fisheries management policies required to prevent the introduction and dissemination of fish diseases within the Great Lakes basin. First-phase activities are aimed at determining the role of fish batcheries in the introduction and dissemination of fish diseases in the basin. (For further information contact: James Warren, Fish Hatchery Biologist's Lab., Genoa, WI 54632)

Meetings and Miscellany

1. Recently appointed as a FISH HEALTH ADVISOR, Dr. Nicolas Medin has joined the Research and Development Section of Environment Canada, Fisheries and Marine Services in Ottawa. His duties will include the preparation of fish disease legislation, coordination of fish health activities, and advising senior government officials on fish health matters.

2. The newly formed FISH CULTURE SECTION of the AFS is currently offering membership invitations. Membership cost is $2.00 per year and all paid-up members of the AFS are eligible to join. (For further information or filing of an application contact: Arden Trandahl, BSF&W, Federal Bldg., Fort Snelling, Minneapolis, MN 55111)

3. A publication titled "Predominant Aerobic Bacteria of Fish and Shellfish" is available from the author, Dr. Don Lewis. In his abstract, Dr. Lewis states that, "Determinative outlines, methods and materials are presented for classifying the majority of the aerobic, heterotrophic bacteria associated with fish and shellfish. Methods for nucleic acid base ratio analysis and a computor program for numerical taxonomy are included". (Contact: Dr. Don Lewis, Dept. of Veterinary Microbiology, Texas A&M University, College Station, TX 77843)

Highlights: Fish Disease Meetings

Midwest Fish Disease Workshop: June 5-7, 1973 Little Rock, Arkansas

1. Channel Catfish Virus: Testing of sera from adult channel catfish is making CCV appear widespread in broodfish in the Southeast. Cautious interpretation of results was stressed. Questions arose concerning the specificity and validity of the testing that has been done. The disease appears troublesome mainly in small fingerlings under stressful conditions.

2. Nutritional Problem in Rainbow Trout: Missouri participants reported some difficulties with altered feed formulas on non-cancellable contracts. Some of the signs noted in rainbow trout were high losses, nervousness, low hematocrits, scoliosis and high conversion rates. The group agreed that increased surveillance for nutritional problems is important during this time of crisis involving fish feed components.

cont. from page 4

3. Hagerman Redmouth (HRM): A serologically confirmed case that occurred in Tennessee was discussed. Terramycin therapy provided relief. In general, the group considered HRM to be on the spread. This bacterial fish disease is considered an efficient fish killer when associated with stress.

4. Infectious Hematopoietic Necrosis Virus (IHNV): The group knew of no reports of strains that produce little or no mortality. Losses to IHNV go as high as 99% when infected susceptible fish are held in water from 50-54°F and losses can be reduced by holding fish at 60°F or above. Obtaining eggs from known IHNV-free sources and iodophor disinfection of eggs are still the best known methods of avoiding this virus disease. Iodophor disinfection is not foolproof and care must be exercised to assure that the disinfection is conducted according to recommendations. By substitution reactions, iodophor compounds can be rendered ineffective by other halogens present in the water.

5. Bacteria Resistant to Terramycin: Some workers in the Southeast are reporting high incidences of Aeromonas liquefaciens isolates being resistant to Terramycin. Nitrofurazone has been used in a number of such cases with apparently good results. Reports also indicate that nitrofurazone is more effective than furazolidone in combatting these TM resistant organisms. The point was made that TM should be recommended only at full dose levels and for the full treatment time as low-level or incomplete dosages can result in increased incidences of drug resistance.

6. Edwardsiella tarda: This bacterial agent is responsible for the disease known as Emphysematous Putrifactive Disease of Catfish (EPDC). The disease as yet has not been associated with high mortalities but, as its name suggests, it causes a putrid condition that has been a problem in processing of catfish for market. The disease has been associated with high water temperatures and fertile pond conditions and wise pond management appears to be the key to minimizing the problem. Affected specimens should be culled from the ponds whenever noticed and at the time of transfer to holding ponds or tanks. The primary external sign is a bulging bubble of liquified tissue on the skin. The organism has been cultured from kidneys, livers, blood and lesions of affected specimens with lesions being the best place to culture from.

7. Henneguya sp.: Discussions concerning Henneguya sp. involved the different forms of disease observed and whether these forms result from infection by different parasite types or by where the parasite becomes established in the host. Forms discussed included two gill forms, two cutaneous forms and a sub-dermal form. Some question was raised as to the pathogenicity of this sporozoan.

8. Internal Fungus in Trout: A fungus identified as Scolicobasidium constrictum has been found in kidneys, livers and GI tracts of trout at at least four hatcheries in the Southeast. Losses attributed to this parasite have been as high as 7%. Some signs of the disease are scoliosis, blister-like lesions on the skin, swollen kidneys, brownish nodules on GI tract surfaces and pale gills. The fungus, found mostly in yearling fish, can be grown on trypticase soy agar and can be seen readily in magnified wet mounts of kidney squash preparations. One hatchery involved was disinfected and the fungus has shown up again. It is suspected that the parasite is being introduced with the feed.

9. Economics of Fish Diseases: Some discussion was generated about the importance of disease-related cost in fish culture. Comments involved economic studies of such costs, how record keeping and follow-up on case histories could help provide figures, and how a fish disease information center of the entire country might be beneficial.

Reported by: Joseph McCraren
James Warren

Highlights: Fish Disease Meetings

Western Fish Disease Conference: July 5-6, 1973 Newport, Oregon

1. Furanace (P 7138): FDA clearance was said to be about 2 or 3 years away. One problem in clearance is involved with environmental impact. A way of removing P 7138 from effluent water is reportedly under investigation. Other interesting aspects brought out are that the drug is rapidly absorbed by fish and readily eliminated. It was also mentioned that this drug might have a relatively short shelf life. The suggestion was made that care be taken to prevent wasting of Furanace into the environment.

2. Common Salt (NaCl): It has been shown that salt used at a concentration of 0.1 % helps alleviate stress during formalin treatments. Salt, at 0.1 %, has also been used successfully to minimize blood chemistry changes during hauling of coho salmon.

3. Kidney Disease: Some workers reported control of Bacterial Kidney Disease by feeding Terramycin at 4.5 gm/ 100 lbs. fish/ day for several weeks followed by another couple weeks on sulfa at 10 gm/ 100 lbs. fish/ day. A paper on Pseudo-KD is reported to be in preparation and is likely to be published soon.

4. Chemotherapy in Closed Water Systems: The use of Terramycin in the feed to control systemic bacterial infections didn't affect the nitrifying bacteria in the filter beds at the Dworshak National Fish Hatchery. Formalin treatments, however, are damaging to these nitrifyers.

5. Vibrio Infections: Oral vaccines are showing promise in controlling such infections. Vibrio vaccine is now available commercially in the form of frozen wet cell packs of formalin killed bacterial cells. The recommended dose is 300 mcg. of bacterin per fish, fed over a 14 day period. The protection provided the fish fades after 30 days off the vaccine. Thus, it is recommended the fish be moved to salt water rearing sites before the 30 day period ends.

6. Stocking of Virus Infected Fish: It seemed the majority consensus of opinion among the group was that fish infected with IPNV or IHNV should not be liberated. However, this position was moderated somewhat to possibly exclude situations where these particular disease agents are already present in the receiving waters. It was noted that IPNV had caused the burying of roughly 1.7 million trout and IHNV evoked the same treatment for 3 million chinook salmon in hatchery populations in the Pacific Northwest in the first half of 1973.

7. Infectious Pancreatic Necrosis Virus (IPNV): Workers in California failed to find evidence that ducks, herons and other birds feeding on IPNV infected fish carried and/or vectored the virus. It was thought that the strong digestive juices of birds probably destroyed the virus (as well as a portion of the investigator's thumb).

8. Whirling Disease: Numerous drugs are being tested for efficacy in controlling whirling disease. It has been found that high levels of furazolidone (100 mg/kg or greater) reduce the number of spores per fish but no cures have been noted. Another finding is that by using warmer water under laboratory conditions, spores can be produced at a faster rate than in the wild. This should be an aid in researching this disease as one complication has been the availability of infective materials.

Reported by: Chris Jensen
James Warren

HOLIDAY WISHES TO ALL - MAY YOUR TINSEL NEVER TARNISH!