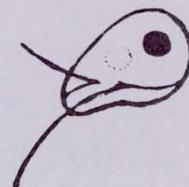


FISH HEALTH SECTION

AFS

NEWS LETTER



Volume 13, Number 4

October 1985

PRESIDENTIAL MESSAGES — PAST AND PRESENT

FROM THE PAST - TREVOR EVELYN

In stepping out of the toe-pinching shoes of FHS president into the more comfortable bedroom slippers of Immediate Past-president, I wish to take this opportunity to thank the chairmen and members of my various committees and many others for their solid support during the past year. Through their efforts we produced a slate of elected officials to oversee the Section's functions for the coming year (my thanks to all those willing to run for the various offices); we handled a landslide of applications for certification brought on by the expiring grandparent clause for Fish Pathologist; we held a successful Joint Workshop with the Western Fish Disease Group and already know where the next two FHS meetings are to be held (Leetown in '86, Vancouver, B.C. in '87); we identified two outstanding fish health workers deserving of the S.F. Snieszko Distinguished Service Award; we continued to produce a first-class newsletter; and we received sound and valuable advice for improving the Section's financial situation, some of which we are already acting on (the sale of advertising space in the newsletter); and last but certainly not least, we made good progress on the Blue Book, the FHS Membership Registry and in developing the Fish Pathologist certification examinations. I trust that the last three projects, two of which are very nearly complete, can be successfully concluded in the coming year. I urge all Section members to give the fullest possible support to incoming president, John Rohovec and his committees.

FROM THE PRESENT — JOHN ROHOVEC

During the administration of Trevor Evelyn many positive things happened for the Fish Health Section, as attested by his parting remarks. Some activities were initiated but have not reached fruition and Trevor has challenged us to complete them. Rowan Gould and Kevin Amos of the Directory and Technical Procedures Committees, respectively, have assured me that two new FHS publications will be available soon. Both the Directory and the new edition of the Blue Book are in the final stages of review and should go to the publishers soon. Paul Janeke worked extremely hard on the Professional Standards Committee and began the formulation of a written examination to be given to those applying for certification as fish pathologists. Paul has done an outstanding job as chairman of the committee and has been the driving force for several years. He is to be commended and the membership should be grateful for his work. Although Paul is retiring from his chairmanship, John Schachte, another fish health professional who is concerned about standards, has volunteered to replace Janeke. I am sure that John will maintain the activities of what I believe to be one of the most important committees of the Section.

Most committee positions have been filled by election or by appointment. I extend my appreciation to all those who have demonstrated a willingness to serve the Section. As one of the editors of the Newsletter, I have been impressed with the continuing support of some of our membership and with the increase in the number of reports received. However, at the same time, I am disappointed in the response received over issues which our Section should debate. As all incoming officers of all organizations must, I encourage those who have remained "anonymous" to participate in our activities. I solicit any ideas or suggestions which might make the Section more suited to your needs. I will serve the Section to the best of my ability, but remind you that it is the membership which make a healthy, viable organization.



John Rohovec congratulates Trevor Evelyn and gives him the AFS/FHS past president's award.



FHS OFFICERS AND COMMITTEES 1985-86

EXECUTIVE COMMITTEE

Voting Members

John Rohovec, Chairman and President, FHS
 Bill Rogers, President-Elect
 Trevor Evelyn, Immediate-Past President
 Doug Anderson, Secretary-Treasurer
 John Schachte, Chairman, Nominating Committee

Non-Voting Members (Chairmen of Standing Committees)

Jim Winton, Newsletter and Publications Committee
 Dennis Anderson, Awards Committee
 Randy MacMillan, Membership and Balloting Committee
 John Schachte, Professional Standards Committee
 Kevin Amos, Technical Procedures Committee
 Joe Sullivan, Archives Committee
 John Fryer, Time and Place Committee

STANDING COMMITTEES

Nominating

John Schachte (elected)
 Tony Amandi
 Ron Thune

Newsletter and Publications

Jim Winton, Chairman
 Dave Ransom
 Tom Wellborn
 Jack Gratzek
 John Rohovec

Membership and Balloting

Randy MacMillan, Chairman
 Kathy Hopper

Technical Procedures

Kevin Amos, Chairman
 Emmett Schotts
 Ray Brunson
 Ken Johnson
 Ellis Wyatt
 Dave Groman, Ex-Officio

Professional Standards

John Schachte, Chairman
 Jim Carlisle
 Doug Mitchum
 John Cvitanich
 Bev Larson

Finance

Doug Anderson, Chairman
 Randy MacMillan (Membership)
 Jim Winton (Newsletter)

Awards

Dennis Anderson, Chr. (1 year)
 John Rohovec (2 years)
 Ron Hedrick (3 years)

STANDING COM. (cont)

Archives

Joe Sullivan (1 year)
 John Grizzle (2 years)
 Roger Herman (3 years)

Time and Place

John Fryer, Chairman (1 year)
 Charles Suppes (2 years)
 To be Named (3 years)

BOARD OF CERTIFICATION (Elected)

Doug Mitchum, Chr. (1 year)
 Kevin Amos (1 year)
 John Lientz (2 years)
 Marshall Bealeu (3 years)
 Paul Bowser (3 years)

AD HOC COMMITTEES

Directory

Rowan Gould

Fund Raising

Dave McDaniel, Chairman
 Doug Anderson
 Roger Herman

International Meeting (1987)

Trevor Evelyn, Chairman
 Bill Rogers
 Barry Hill
 (others to be named)

Program (1986 Meeting)

Bert Lidgerding
 (others to be named)

Examination Review Board

John Fryer, Chairman
 (others to be named)

AFS/FHS ANNUAL MEETING AND WESTERN FISH DISEASE WORKSHOP AT SEATTLE

The Seattle workshop was, by all accounts, a success. There were 128 registered participants at the meeting and 41 presentations were made on various infectious and non-infectious fish health problems during the first two days of the meeting. In addition, useful discussions on specific fish health problems (BKD, IHN, new erythrocytic viruses, etc.) were held the final half day as part of the Western Fish Disease Workshop. The program and abstracts of the presentations are available in the Workshop Proceedings, copies of which are still available from T.P.T. Evelyn, Pacific Biological station, Nanaimo, B.C. Canada V9R 5K6. Payment of U.S. \$1.50 per copy should be in the form of a check or money order payable to The Fish Health Section, American Fisheries Society. A group photograph of the attendees is available from Sally Majnarich, BioMed Labs, 1115 E. Pike st., Seattle, WA 98122. A 5x7 black and white print is \$4.00 and an 8x10 color print is \$15.00.

Financially, the FHS broke even in staging the workshop and John Majnarich of BioMed Labs was kind enough to provide the coffee and donuts and to host a very enjoyable cocktail hour that preceded the banquet. Thanks are also due to Dr. Leo Margolis, Pacific Biological Station, Nanaimo, B.C. for giving up his holidays and coming to serve as the after dinner speaker at the banquet. His talk "Fish Parasites as Useful Tools in Fisheries Management" focused on an aspect of fish parasites not usually considered by fish health workers. The Section also had the distinct honor of presenting the S.F. Snieszko Distinguished Service Award to James W. Wood, Washington Department of Fisheries. After the awards, Trevor Evelyn received the outgoing president's plaque from president-elect John Rohovec.



POSITION ANNOUNCEMENT

Title: Area Extension Fisheries Specialist

Headquarters: Extension Wildlife and Fisheries Department, Belzoni, MS (Humphreys County)

Major duties: The specialist will work with commercial fish farmers to solve disease, production and aquatic weed problems; will be responsible for planning and conducting workshops and short courses on all aspects of commercial fish production; will prepare supplementary information for these courses for distribution as bulletins; will work closely with other specialists to develop a comprehensive approach to increase commercial fish production; and will develop programs for teaching conservation of natural resources to youth groups. Program emphasis will be on fish disease diagnosis and control.

Starting Date: Immediately

Qualifications Required:

Minimum: Master's Degree from an accredited institution of higher learning in Fisheries Management with academic training needed for AFS/Fish Health Section certification as a Fish Pathologist and some experience in commercial aquaculture systems.

Preferred: Ph.D. from an accredited institution of higher learning in Fisheries Management with academic training needed for AFS/Fish Health Section certification as a Fish Pathologist; two or more years' experience in disease diagnosis and control in commercial aquaculture production systems.

Position Open To: September 30, 1985, or until an acceptable applicant applies, whichever is later.

Inquiries should be directed to Mr. Milburn Gardner, Personnel Officer, P.O. Box 5446, Mississippi State, MS 39762, telephone 601/325-3462.

PASSAGES

Glenn L. Hoffman has moved from Stuttgart, AK back to West Virginia. His new address is: Route 3, Box 36, Kearneysville, WV 25430.

Please make note of the new address and direct all fish health correspondence and letters for Jim Peterson to this address: Jim Peterson, Fish Health Biologist, Montana Department of Fish, Wildlife and Parks, Giant Springs Trout Hatchery, P.O. Box 2163, Great Falls, MT 59403. Phone: (406) 452-5734.

S.F. SNIESZKO DISTINGUISHED SERVICE AWARDS ('84-'85)

Graham L. (Pete) Bullock, Director of the U.S. Fish and Wildlife Service National Fish Health Research Laboratory, Leetown, WV, and James W. (Jim) Wood of the Washington Department of Fisheries, were the two recipients of the 1984-85 S.F. Snieszko Distinguished Service Award.



Pete Bullock receives his Snieszko Award from Emmet Shotts at the National Fish Health Research Center

Because Pete was not able to attend the Seattle workshop, his award was presented to him prior to the workshop at a special ceremony arranged by his friends and colleagues at Leetown. Jim's award was presented to him by Kevin Amos during the banquet at the Seattle workshop. Our hearty congratulations to Pete and Jim.



Jim Wood receives S.F. Snieszko Award at the FHS Award Meeting in Seattle.

RECENT RECOGNITION OF OTHER FHS MEMBERS

GLENN HOFFMAN RECEIVES DISTINGUISHED SERVICE AWARD OF THE FISH CULTURE SECTION OF AMERICAN FISHERIES SOCIETY

The Fish Culture Section of the American Fisheries Society has presented its Distinguished Service Award, in absentia, to Dr. Glenn Hoffman at the annual meeting of the American Fisheries Society at Sun Valley, Idaho, September 10, 1985. Following is a letter Hoffman received from Fish Culture Section president Monty Millard of Valley City, North Dakota:

"Dear Glenn:

I'm happy to inform you that you were selected from a very distinguished list of your colleagues to receive our Section's highest honor, the Distinguished Service Award. Your research throughout your career has assisted immensely the development of fish culture within the United States and the world.

The AFS EXCOM recently endorsed the concept, presented by our Section, to establish a Fish Culture Hall of Fame at the D.C. Booth Historic Fish Museum at Spearfish, SD. As a recipient of our Distinguished Service Award you will automatically be included. I'm certain that as the years go by and additional members of your peer group are included, the Hall of Fame will become an honored tribute to the many fish culturists and researchers such as yourself!"

DAN MULCAHY RECEIVES AWARD OF MERIT FROM THE WESTERN DIVISION OF THE AMERICAN FISHERIES ASSOCIATION

The Western Division of the American Fisheries Society has presented an Award of Merit to Dr. Daniel M. Mulcahy at its Annual Meeting in Snowmass, Colorado July 15-19. Dan's work on control of IHNV and detection of BKD was recognized. Excerpts of the Award Presentation were read at the Seattle Meeting by Tony Novotny, President of the Western Division.

A SYNOPSIS OF THE MOST SERIOUS DISEASES OCCURRING IN MAINE SHELLFISH

*Stuart W. Sherburne and Laurie L. Bean
Marine Resources Laboratory,
West Boothbay Harbor, ME 04595*

Since the inception of the DMR Pathology unit in 1979, we have examined approximately 5,700 shellfish for evidence of disease and other abnormalities. The species examined included 2,992 blue mussels, *Mytilus edulis*; 1,356 oysters, (American and European) *Crassostrea virginica* and *Ostrea edulis*; 1,605 soft-shelled clams, *Mya arenaria*; 181 sea scallops, *Placopecten magellanicus*; 50 quahogs, *Mercenaria mercenaria*; 44 black clams, *Arctica islandica*, and 11 Yugoslavian oysters *Arca noae*. Approximately 90% of the specimens were sampled from 50 areas along the Maine coast as part of our endemic disease survey. The remainder of the specimens were submitted for examination from other states and institutions. Examinations included, in the majority of cases, both gross and microscopic examinations by light microscopy of thin tissue sections prepared by routine histological methods. When needed, special stains were used to further delineate the organism.

Two diseases, a bacterial disease affecting sea scallops, *Placopecten magellanicus*, and a cancerous condition in soft-shelled clams, *Mya arenaria* are known to cause mortalities in their respective hosts. At least four areas of our coast contain populations of sea scallops with large brown abscesses in the muscles and viscera which make the scallops unmarketable. This bacterial disease was first reported from Harpswell Sound in 1977, in Muscongus Bay in 1979, the Damariscotta River in 1980, and the St. Croix River in 1981. It is apparently exclusive to Maine's waters, with heaviest infections usually occurring in upper river locations. Further work on the prevalence and identification of the causative agent of this disease is needed.

ARTIFICIAL TRANSMISSION OF ERYTHROCYTIC VIRUS

S.L. Leek,
USFWS
Box 17, Cook, WA 98605

Spring chinook salmon (average wt. 25 gm) at the Little White Salmon National Fish Hatchery were found to be naturally infected with the newly described agent of salmonid anemia. Tissue homogenates from these fish were used to experimentally infect healthy fall chinook salmon (average wt. 6 gm) from the Spring Creek National Fish Hatchery. Infection was accomplished by force feeding via stomach intubation. Two days following infection, the fish were examined for erythrocytic inclusions with negative results. However, the fish did have inclusions four days post-infection; but were again negative on day 7, 12, 16, and 24. Samples taken 28 days after infection had inclusions in the red cells and viral particles were observed by electron microscopy. ERM and BKD are present in fish reared at Spring Creek National Hatchery. When 18 fish were examined, 17 had ERM and 6 had BKD. It is unknown if the artificial infections stressed the fish with subsequent enhancement of the bacterial diseases. This test indicates that feeding tissues infected with the erythrocytic virus to disease-free salmon can transmit this infection which may be confirmed by electron microscopy.

EFFECT OF TEMPERATURE ON MORTALITY OF CHANNEL CATFISH INFECTED IP WITH EDWARDSIELLA ICTALURI

R. Francis-Floyd and M.H. Bealeu
College of Veterinary Medicine, Delta Branch Exper. Station
P.O. Box 197, Stoneville, MS 38776

Channel catfish (*Ictalurus punctatus*) fingerlings were infected by intraperitoneal (IP) injection with graded doses of *Edwardsiella ictaluri* at 6 water temperatures. Infected fish were held at water temperatures of 17, 21, 23, 25, 28, and 32C for 10 days while mortality and clinical disease were monitored.

Significant differences ($P < .05$) between the mortality of control and test fish occurred at 23, 25, and 28C. The 10-day LD_{50} at these 3 temperatures ranged from $1 \times 10^{5.1}$ to $1 \times 10^{5.8}$ bacteria per fish. The 96-hr LD_{50} was significantly decreased at 23 and 25C to $1 \times 10^{4.3}$ and $1 \times 10^{4.1}$ bacteria per fish, respectively. The lesions produced by IP injection closely paralleled those reported from natural outbreaks of Enteric Septicemia of Catfish (ESC) and other laboratory studies, except the "hole-in-the-head" lesions were not produced.

ANCHOR PARASITE (*LERNAEA CYPRINACEA*) CONTROL

Glenn L. Hoffman
Rt. 3, Box 36, Kearneysville, WV

The discovery that trichlorfon (Masoten, Dylox, Dipterex, etc.) would kill the larval stages of *Lernaea* was very welcome to fish culturists world wide (F. Meyer 1966). However, trichlorfon degrades rapidly at temperatures above 80F (26C) so southern fish farmers faced difficulties at the temperature that *Lernaea* caused the greatest damage. Those fish culturists anticipating a *Lernaea* epizootic often use Masoten before the water becomes too warm, but one cannot always foresee epizootics so a more stable therapeutant is desired. In 1980 Mrs. Brenda Moore and I at the U.S. Fish Farming Experimental Station tested diflubenzuron (1-(4-chlorophenyl)-3-(2,6-difluorobenzoyl)-urea), a chemical that interferes with the formation of insect cuticle, against the nauplii of *C. cyprinacea*. We found that as little as 0.01 ppm active ingredient in the water killed all nauplii. According to the manufacturer, 76% of the chemical persists after one week in water and it is not degraded by pond water temperatures above 80 F.

ISOLATION OF A NEW HERPESVIRUS FROM SPAWNING ADULT STEELHEAD TROUT

R.P. Hedrick¹, T. McDowell¹, L. Chan² and W. Wingfield²

¹Department of Medicine, School of Veterinary Medicine,
University of California, Davis, CA 95616

²Fish Disease Laboratory, California Department of Fish and
Game, 2111 Nimbus Rd, Rancho Cordova, CA 95670

The ovarian fluid from adult steelhead trout (*Salmo gairdneri*) returning to the Warm Springs Hatchery (CDFG) was found to contain a virus that induces syncytium and giant cell formation in CHSE-214 cells. Viral CPE is evident after 5 days incubation of infected cells at 12C. Electron microscopy showed that infected cells contained numerous virus particles in the nucleus that ranged in size from 110-130 nm in diameter. Enveloped particles were also observed and these were approximately 200 nm in diameter. The morphology and size of the virus and the presence of a membrane suggest the agent belongs to the herpesviridae. The physical, biochemical and serological properties of the virus as compared to known herpesviruses of salmonid fish is under investigation. If the new virus is confirmed to be a herpesvirus, this will be the only report of a virus from this group to be isolated from salmonids in North America since *Herpesvirus salmonis* came and went from the Winthrop Hatchery in Washington State in the 1970's.

FISH AND LOBSTER MORTALITIES ASSOCIATED WITH AN INFLUX OF ATLANTA MENHADEN, BREVOORTIA TYRANNUS AND RESULTANT LOW OXYGEN LEVELS IN SOUTH BRISTOL, MAINE

Stuart W. Sherburne,
Maine Dept. of Marine Resources,
Fisheries Research Lab., W. Boothebay Harbor, ME 04575

There has been an overabundance of Atlantic menhaden (pogies) off the mid-Maine coast this summer.

At about 11 p.m. on Friday night, August 9, 1985, a school of approximately 40,000 to 80,000 bushels of pogies entered the small harbor at South Bristol, ME, apparently driven into the area by marauding bluefish. On the morning of August 10, Mr. Dennis Farrin reported that fish and lobster mortalities had occurred at his lobster pound and at the South Bristol Fisherman's Co-op. Mr. Farrin reported that 1200 to 1400 pounds of lobsters confined in lobster crates had died, along with several small lobsters 5" and 6" in total length observed on the bottom near his dock. Mr. Farrin had saved several specimens each of 9 species of fish that he had collected from the shore earlier that morning, including alewives, *Alosa pseudoharengus*, winter flounder, *Pseudopleuronectes americanus*, longhorn sculpin, *Myoxocephalus octodecemspinosus*, rainbow smelt, *Osmerus mordax*, Atlantic mackerel, *Scomber scombrus*, Atlantic tomcod, *Microgadus tomcod*, Rock gunnel, *Pholis gunnellus*, Atlantic menhaden, *Brevoortia tyrannus*, and an unidentified small hake. The fish had classic signs of death from lack of oxygen with gaping mouths and splayed opercula.

The surface seawater dissolved oxygen level taken at 1:30 p.m. (low tide) at Farrin's was 2 p.p.m. The great influx of pogies during the night had evidently depleted the oxygen levels below that required for both fish and lobsters. This was the first time that pogies have been implicated in the death of lobsters.

At 7:15 p.m. (high tide) on August 10 dissolved oxygen levels were still 2 p.p.m. Pogies were "finning" on the surface and gasping, rock gunnels were crawling up the rip-rap, apparently searching for a better source of oxygen. Luckily, the pogies left the area sometime during the night, oxygen levels increased to 6 p.p.m. by the afternoon of August 11 and no further mortalities were observed.

INVESTIGATION OF CANCER IN MAINE CLAMS

Stuart W. Sherburne and Laurie L. Bean
Department of Marine Resources
West Boothbay Harbor, ME 04575

A malignant, cancerous condition affecting soft-shell clams, *Mya arenaria*, known to exist in only three populations of clams along the Maine coast prior to 1983, is now evident in at least ten populations of clams from Portland to Lubec. This condition is termed a sarcoma by some pathologists and leukemia by others.

This condition was first diagnosed in clams in 1971 by Dr. Paul Yevich of the Environmental Protection Agency Laboratory at West Kingston, RI following an oil spill at Long Cove, Searsport, ME. It was again found in 1972 after a jet fuel spill in Harpswell, ME and in 1980 in Dennysville following a herbicide spray drift accident in 1979.

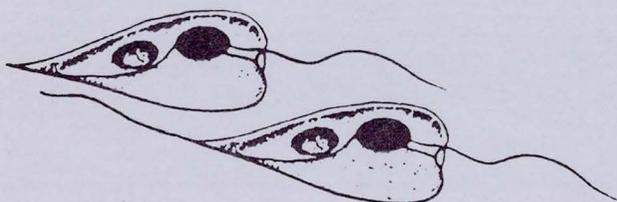
Neoplasms were still evident in the Dennysville area in 1982, and routine samplings in 1983 showed severely affected neoplastic clams in Pleasant Cove, Damariscotta River. Because the Damariscotta is considered a clean area, and previous instances of neoplasms were associated with oil spills and herbicides, additional clam populations were examined for evidence of this condition.

To date, we have found neoplastic clams at Mackworth Island, Portland; Thomas Point Beach, Brunswick; Montsweag Brook, Wiscasset; Pleasant Cove, Damariscotta River; Merry Island, Damariscotta River; Fosters Island, Johns Bay; Salt Pond Outlet, East Friendship; Long Cove, Searsport; Hardscrabble River, Dennysville and Hallowell Island, Cobscook Bay. Two areas sampled south of Portland — York and Wells, have been negative.

This condition affects two major areas of the clam, the gonadal or reproductive system, and the haematopoietic, or blood system, where neoplastic cells go through the bloodstream and affect various organs. Certain clam populations are noted for having only one type of neoplasm, such as the population at Searsport where only the gonadal neoplasm is found. Some areas such as the Damariscotta River have only haematopoietic neoplasms. Other populations have both types of neoplasms, such as the Hardscrabble River in Dennysville.

Two methods are being used to diagnose this condition — routine histological processing and examination of thin tissue sections stained by hematoxylin and eosin, which takes approximately 7-10 days from receipt of specimen to examination, and a new bleeding method that can be done in one day. In this method the blood is allowed to settle onto a poly-L-lysine coated slide for one hour and the cells stained with Feulgen-picro-methyl-blue. In addition, a monoclonal antibody test is being developed at the Gloucester N.M.F.S. Technological Laboratory and at Tufts University.

Since neoplastic clams are undoubtedly being dug by commercial diggers and sold to the public, we need to determine if there is a health hazard and, if so, what kind of measures should be taken to minimize any health risk. Studies are being initiated with the Maine Department of Human Health to have neoplastic tissues and sediments examined for evidence of possible carcinogens or other agents that may be harmful to human health.



VIBRIOSIS IN CHANNEL CATFISH

Dr. Don Lewis,
Texas A & M University,
College of Veterinary Medicine, College Station, TX

Vibriosis is likely to be more important in catfish than is currently recognized. This report concerns one epizootic involving *Vibrio anguillarum*. Initially, the organism did not grow well on TSA containing no salt, but was readily recoverable on 5% bovine blood agar. Broth cultures initially required at least 1% NaCl. After 3-5 laboratory passages, the organism grew well in media without NaCl supplementation. The organism was readily differentiated from enterics on the basis of its positive cytochrome oxidase reactions, from aeromonads on the basis of its inability to produce gas in glucose and its susceptibility to the vibriostat. It seems an increasing number of organisms similar to this vibrio are being recovered which are difficult to identify. In some cases the organisms may be characterized as *Plesiomonas shigelloides* (the only species in the genus). It might be well to consider differentiation of similar appearing organisms in this group viz. *Aeromonas*, *Vibrio* and *Plesiomonas*.

Of course positive oxidase test differentiate all these organisms from enterics. *Plesiomonas*, like vibrio is anaerogenic. Occasionally there are anaerogenic aeromonads. Inositol fermentation by *Plesiomonas* and the inability of *Plesiomonas* to ferment mannitol, serves to differentiate them from vibrios and aeromonads. *Plesiomonas* are generally non hemolytic on blood agar, vibrios are often alpha hemolytic and aeromonads are nearly always beta hemolytic.

NEW FISH DISEASE LEGISLATION IN WASHINGTON

Randy McLeary,
Trout Lodge, P.O. Box 11, McMillin, WA 98352

Washington State Governor Booth Gardner signed legislation July 28, 1985 that substantially alters state agency finfish and shellfish health management roles.

In an August 7, 1985 joint communique, Agriculture Director Pettibone and Fisheries Director Wilkerson briefly outlined a few of the legislation's mandates. "Under the new law, the Department of Agriculture and the Department of Fisheries will work together to assist the aquaculture industry and provide the necessary protections for disease control."

Some other elements of the law include replacing the farmer licensing requirements with a policy of registration for aquatic farmers. An Aquaculture Advisory Council will be appointed by the Governor to advise the departments in "all aspects of aquatic farming."

In administering the jointly established disease control program, "the Department of Fisheries shall use the services of a pathologist licensed to practice veterinary medicine." A system of user fees will also be established to fund the disease control program.

In the aforementioned letter, Directors Pettibone and Wilkerson succinctly summed up the aquaculture legislation with the following statement: "The new law affecting aquaculture in Washington is intended to simplify the regulatory structure and provide the support that will help the industry meet its potential."

VOTE ON FHS BYLAW CHANGES

Proposed changes to the FHS bylaws were published in Volume 12(3) of the FHS/AFS Newsletter for all FHS members to consider. The changes are aimed at insuring the continuity of function of the various FHS committees, a goal which would be accomplished by having committee members serve staggered terms. The changes would also make the Archives Committee and the Time and Place Committee into standing (rather than ad hoc) committees. We ask that you: 1. re-read the already published proposed bylaw changes to refresh your memories on their content and then 2. signify your approval or disapproval by completing and returning the ballot provided. Should you and the AFS EXCOM approve the proposed new bylaws we would implement them as early as possible (perhaps in 1985-86).

FOR THE LACK OF PROPER TOOLS . . .

(From SFI Bulletin, No. 365, June 1985)

Recently, a state fish hatchery in Washington lost over 5 million chinook salmon (14 tons) to bacterial gill disease for lack of an approved therapeutant. The Sport Fishing Institute has learned that FDA will grant EMERGENCY approvals in such situations if the following information can be provided:

1. Verification that an emergency exists and no other product is available. The disease and causative agent can be identified.
2. The desired therapeutant and intended level of use in mg/kg of body weight or ppm (active ingredient) in the water.
3. The species, life stage, number, and weight of fish to be treated.
4. Inherent withdrawal time between treatment and earliest likely human consumption.
5. Intended source of the product—Company name, representative, address, and telephone number if known.

Dr. Donald Gable in FDA's Center for Veterinary Medicine, telephone numbers: FTS 443-1414, or commercial (301) 443-1414, has the authority to grant emergency authorizations for use of nonregistered therapeutants on a case-by case basis. State agencies should have a responsible official in the state office make the call. Requests from private companies are considered but may require greater validation. The key to getting authorization rests with demonstration that the excepted use will not endanger human food use via the treated animals and that no alternative therapeutant is available. If an alternative, approved compound is available, FDA may suggest its use.

BOOKS OF INTEREST

Symposium on Fish Vaccination. P. de Kinkelin and C. Michel, Eds. Office International des Epizooties, 12 Rue de Prony, 75017 Paris, France. 1984. 248pp.

The full title of this book is **Symposium on Fish Vaccination, Theoretical Background and Practical Results on Immunization Against Infectious Diseases.** It is the product of a symposium held in Paris February 20-22, 1984 sponsored by the O.I.E. A foreword by P. de Kinkelin is followed by the body of the volume consisting of eight reports: The principal infectious diseases of fish and their general control measures authored by P. Ghittino, H. Schwedler and P. de Kinkelin; Applied immunology of fish by M. Dorson; Evaluation of the protection activity and economic efficacy of vaccines for fish from C. Michel, G. Tixier and M. Mevel; A furunculosis vaccine-illusion or achievable objective by A.L.S. Munro; Immunization against pathogenic vibrios by T.P.T. Evelyn; Immunization against *Y. ruckeri*, cause of enteric redmouth disease by G.L. Bullock and D.P. Anderson; Immunization against viral diseases occurring in cold water by P. de Kinkelin, J. Bernard and A.-M. Hattenberger-Baudouy; and the final report from J.A. Plumb on Immunization of warm water fish against five important pathogens. Also included are summaries of the discussion following each paper, some general conclusions regarding the development and use of fish vaccines, and recommendations from the O.I.E. fish disease commission.

The authors of the chapters in this book have done an excellent job in providing both summary information and current experimental data. The result is a volume which covers a wide range of topics including general summaries of selected infectious agents of fish, applied immunology, economic evaluation of vaccines and current research efforts toward development of new vaccines. I was especially impressed with the effort the authors have made to include the most current (through 1983) information available. This book is highly recommended for those interested in learning about the present state of fish vaccination and for those working with infectious diseases of fish with an eye toward developing new immunogens.

Handbook of Drugs and Chemicals Used in the Treatment of Fish Diseases. N. Herwig. Thomas, Springfield, IL. 1979. 188pp. \$29.75.

While many of the references are now becoming dated, this book remains the single most comprehensive source of information for drugs used in the treatment of fish. The book is divided into two parts, the first contains four chapters dealing with pharmacology. Included

SHORT COURSE

Thomas L. Wellborn, Jr.
Extension Wildlife and Fisheries,
Mississippi State University, PO Box 5405,
Mississippi State, MS 39762

This is to announce the short course "Diagnosis and Treatment of Diseases of Warmwater Fish" (WL 4124/6124) will be taught at Mississippi State University May 12-23, 1986.

This short course is to provide instruction in the methodology of diagnosis and treatment of parasitic, bacterial, viral, nutritional and environmental diseases of warmwater fish. Undergraduate or graduate credit of four semester hours is given for successful completion of the course. Tuition for the course is \$167.00, however, this is subject to change.

This course is limited to 24 persons, and applications must be received on or before March 1, 1986. Persons interested in taking the course should apply by writing Dr. Thomas L. Wellborn, Jr. at the above address. All applicants will be advised whether or not they have been accepted to attend before April 1, 1986.

Students will be expected to provide their own compound microscope and dissecting kit for use in the laboratory. However, a limited number of microscopes will be available for those people who do not have access to one.

Instructor for the course will be Dr. Thomas L. Wellborn, Jr., Leader, Extension Wildlife and Fisheries, Mississippi Cooperative Extension Service, Mississippi State University.

TRANSLATIONS IN PROGRESS

G.L. Hoffman
Rt. 3, Box 36, Kearneysville, WV 25430

The following six books are under translating contract with Amerind Co. of India under the PL480 translating program:

1. Egusa, S. 1978. Fish Pathology. Contact National Marine Fisheries Service. Typescript completed.
2. Ginetsinskaja, T.A. 1968. Trematoda. Possibly available 1986. Contact G. Hoffman.
3. Gusev, A.V. Investigation of Monogenea in the Soviet Union. Possibly available 1986. Contact G. Hoffman.
4. Izyumova, N.A. 1977. Parasite Fauna of Fish of USSR Reservoirs and Ways of its Formation. Possibly ready 1986. Contact G. Hoffman.
5. Schaperclaus, W. 1979 with later revision. Fischkrankheiten (Fish Diseases). 2 vols. Possibly available 1986. Contact G. Hoffman.
6. Shulman, S.S. 1966. Myxosporidan Fauna of USSR. Possibly ready 1986. Contact G. Hoffman.

It is my duty to proofread the typescripts of 2-6 above. If you are interested in a particular one, or part thereof, please volunteer to help.

After corrections are made, 400 copies of each will be distributed on a first come, first served basis.

are chapters on types of therapy, sources and principles of drugs, forms of medication, calculation of dosage, actions and uses of drugs and toxicology. The second, and most impressive section, consists of 120 pages of compounds which can be used in the treatment of fish. Many of the drugs listed are obsolete or illegal for use in food fish, but their inclusion for historical purposes is an important cross reference for older or foreign literature. For most of the drugs listed, a standard format includes chemical composition, synonyms, what it is used for, dosage, remarks including toxicity, and several references to the use of the compound. Several useful appendices and the bibliography complete this work. The book, although somewhat dated, is highly recommended for anyone dealing with medication of fish.

James R. Winton

BRIEF REPORTS

Copies of the Proceedings of the Joint Fish Health Section/Western Fish Disease Workshop held in Seattle are available by writing T.P.T. Evelyn, Pacific Biological Station, Nanaimo, B.C., Canada V9R 5K6. Please remit \$1.50 U.S. currency in the form of a check or money order payable to the Fish Health Section/American Fisheries Society.

Bill Klontz has arrived at a novel thought: Can the carrier state of some disease agents in fish be overlooked when using immunological detection methods if the specific agent is coated with fish antibodies?

Tim Brush is interested in obtaining information on the copepod parasite, *Ergasilus labracis*, of striped bass. In particular, any work that has been done in freshwater. He would greatly appreciate any available reprints, unpublished reports, or correspondence concerning this copepod. Please mail to, or call: Tim Brush, Muddy Run Ecological Laboratory, P.O. Box 10, Drumore, PA 17518, (717) 548-2121.

The Program Committee for the 1986 annual meeting in Leetown, WV asks the FHS membership for suggestions for a theme for the meeting. This year's workshop emphasized IHNV, BKD and non-infectious diseases. Bert Lidgerding, National Fish Health Research Laboratory, Leetown, WV 25430.

Dr. P. Nasir has published a book, **British Freshwater Cercariae**, a monographic work, covering 345 pages, including 345 illustrations. If you are interested, it is available from Dr. P. Nasir, Apartado Postal No. 172, Cumana 6101A Sucre, Venezuela, South America. Include \$21 (U.S. currency) for handling and air mail postage.

Infection of Atlantic salmon in the Pacific aquaculture with a myxozoan, *Kudoa thyrsitis*, has been documented recently and has caused some worries among the aquaculture community. It might be of interest to note that the same parasite has now been found in the cardiac muscle [sic] of coho. A detailed account of the case is being prepared for publication. Z. Kabata, Pacific Biological Station, Nanaimo, B.C.

Pacific lamprey (*Lampetra tridentata*) inoculated intraperitoneally with 1.3×10^6 CFU of *R. salmoninarum*, a dose that killed sockeye salmon in 40 days, still appeared healthy and free of the bacterium when the experiment was terminated at 92 days post inoculation. G. Bell, Pacific Biological Station, Nanaimo, B.C.

A computer program has been written in BASIC language for the Apple IIe computer which efficiently performs all the calculations required to determine gas pressure and saturation values for water. Input for the program is limited only to empirically derived values. The program will automatically provide values of water vapor pressure and Bunsen solubility coefficients appropriate to the temperature and salinity at which the determinations are made. Gas supersaturation conditions can be more closely monitored because a greater number of analyses can be handled with less time and effort. The program can be easily modified to run on most other microcomputers which use BASIC programming language. For further information contact: Verdel K. Dawson, National Fishery Research Laboratory, PO Box 818, La Crosse, WI 54602-0818, phone (608) 783-6451 or FTS 364-3210.

Tentative dates have been set for the annual FHS meeting for 1986. The proposed dates for the meeting to be held in Leetown, WV are July 29-31. A joint meeting with the Eastern Fish Disease Workshop is planned.

A call for papers for Aquaculture Reno 86 has been issued by Fish Culture Section program chairman Randy Robinette. We are past the deadline, but if you call Randy (601) 325-3507, right away you may still have time to get your paper included in the January 19-23, Reno, Nevada meeting. He's looking for papers on production methods, nutrition, diseases, parasites, water quality, genetics, biotechnological and larval culture.

An ELISA for detecting penaeid baculovirus is currently being investigated. Antisera to *Baculovirus penaei* was developed in rabbits and used to detect baculovirus particles from hepatopancreatic tissues. The technique would appear to be of some value in screening shrimp stocks and in confirmatory diagnostic procedures. Don Lewis, Texas A&M University, College Station, TX.

The typical external columnaris organism, *Flexibacter columnaris*, has caused severe mortalities as an internal infection in rainbow trout. Mortalities in fry and fingerling trout can approach IHNV magnitude, but readily respond to TM medicated feed. Growth on media takes 7 to 10 days on initial isolation; however, the organism is readily seen in imprints or smears of spleen tissue. (The organism was identified as *Flexibacter columnaris* by ODFW.) Nancy E. Wood, I.A.R.C., Route 1 Box 264, Hagerman, ID 83332.

Proliferative kidney disease was found in production lots of rainbow trout at the Hagerman State Hatchery, Riley Creek, again on April 11, 1985. This is the earliest it has been isolated and the fifth year in a row. Mortalities attributed directly to PKD were very low. Dr. Klontz is continuing his study and his newest theory is presented in the "Proceedings of the Joint Fish Health Section, American Fisheries Society -Western Fish Disease Group Workshop". Harold Ramsey, Idaho Dept. of Fish and Game, 600 S. Walnut, Box 25, Boise, ID 83707.

This past spring we experienced chronic mortality in 2 year-old female Colorado cutthroat trout. Since we had no need for the eggs, these fish had not been spawned. Bacterial gill disease was diagnosed and fish were treated, but mortality in unspawned females persisted. Histological examination of tissues from moribund fish demonstrated severe pathological changes in kidney tubules resulting from apparent increased absorption of egg yolk protein in tubule epithelial cells. Similar changes were not seen in males. This points out the importance of stripping eggs from females even though they are not needed. Charlie E. Smith, Fish Technology Center, Bozeman, MT.

FHS/AFS NEWSLETTER ADVERTISING SPACE AVAILABLE

Current costs of producing and distributing our Newsletter consume the Section's entire yearly income from membership dues. This leaves the Section with little financial room for specialized projects. There is general agreement that the Newsletter should attempt to pay for itself and that it should do so without reducing the quality or frequency of publication. At the general meeting of the FHS in Seattle on July 31, it was agreed that the Newsletter should attempt to accomplish the foregoing through the sale of advertising space. The Newsletter's audience, after all, consists of about 450 fish health professionals who represent various fisheries agencies and private organizations around the world. This, then, is an invitation to all firms marketing fish health or fish culture products to consider the Newsletter when developing their advertising campaigns. Inquiries regarding advertising space and costs should be submitted to Jim Winton, Hatfield Marine Science Center, Newport, OR 97365. The Section also is seeking advertising for the Fish Health Directory. These requests should be sent to Rowan Gould, USFWS, Division of Fisheries Research, Dept. of Interior, Washington, D.C. 20240.

FISH HEALTH NEWSLETTER

The Fish Health Newsletter is a quarterly publication of the Fish Health Section of the American Fisheries Society. Submissions of any length on a topic of interest to fish health specialists are encouraged and should be addressed to one of the editorial staff or to a member of the publication committee.

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