Fish Health Section Newsletter

AFS

Volume 4 October - December 1976 Number 4

COLD WAVE CRIPPLES TROPICAL FISH FARMS

The commercial ornamental pet fish industry in the state of Florida is estimated to provide 85% of the U.S. demand for ornamental fish, have gross annual sales of 25 million dollars and employ 3,000 people. However, the unusually long cold winter that has gripped the Southeastern United States has caused substantial losses of fish on the 350 to 400 Florida farms.

According to Mr. Dan Fix of Roberts Fish Farm, one of the largest commercial growers in Florida, 90% of the states production capacity located near Tampa Bay in Hilsburo county on the West coast of the state, has lost 95% of its stock on hand in outdoor pools. The remainder of the industry located on the East coast has lost 30% to 40% of its fish. With the aid of the governor of Florida, the industry has qualified for federal disaster relief funds.

In a recent telephone interview, Fix noted that critical minimum temperatures for most ornamental pet fish are between 11 C and 12 C. Under normal winter conditions the 8 to 16 foot deep outdoor ponds maintain a minimum temperature of 15.5 C on the surface and 18 C on the bottom with the aid of low flow 23 C well water. However, during the recent prolonged cold spell accompanied by high winds, outdoor ponds got down to 4.5 C on the bottom and 10 C on the surface in West Florida and 7 C and 13 C respectively on the East coast. Rapid turnover effects of the winds were lessened to some extent by the use of plastic greenhouse-type covers over some of the ponds but losses were still great. A small percentage of the growers were able to move some of their more valuable stock into temporary indoor facilities. Others have tried to increase the flow of 23 C well water in an attempt to hold pond temperatures, but this action is limited by toxicity problems.

Mortalities were first noted within 48 hours in the firemouth cichlids and common guppies. Most other livebearers and all of the egglayers followed. The descending order of resistance to the cool temperatures was noted to be green and black mollies, variatus platies, and swordtails. Affected fish were characteristicly noted to become darkened and lethargic and drop to the bottom of the ponds with mortality being complete in most species in 48 to 96 hours at temperatures less than 11 C. It was also noted that the fish demonstrated a greatly reduced metabolic rate, went off feed, and failed to maintain the protective mucus slime layer. This condition was noted to result in considerable losses at a later time in the survivors due to acute mouth and body fungal infections with secondary bacterial septicemias. The fish cannot be trapped and will not tolerate any form of handling. Due to the sustained cool water temperatures, the mortalities have not floated to the surface for an accurate inventory of the loss.

The impact of this catastrophic loss is already being felt on the retail market. Both domestic and some imported pet fish have experienced a 25% increase in whole-

continued on page 2 ...COLD WAVE

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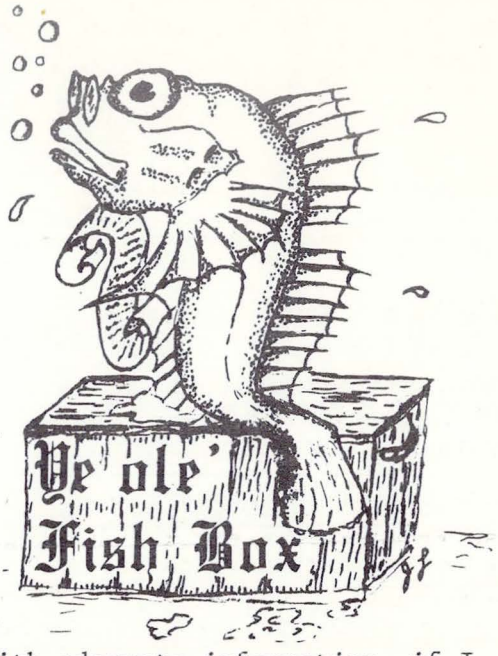
Aquatic Animal Health
An Editorial Comment



STILL TIMELY AND TRUE
40 YEARS LATER

Picture yourself bending over a trough picking eggs. The clatter of hoofs suddenly rings from the snow-covered hatchery roof - or if you must be technical - from the driveway. The hatchery door opens and in walks a bewhiskered gentleman wearing a brilliant red suit - it's Santa Claus. He walks slowly over to where you are standing - he speaks -

"Brother, could you spare me a dime? In return for one thin dime, I will reward you with adequate information, if I possess it, upon any subject which will help you as a fish culturists."

The chances are just about a hundred to one that you will reply, "Well Claus, how about fish diseases, and the dime is yours."

Your dime is perfectly safe. Your visitor slowly retraces his steps to the door, climbs into his sleigh, shifts gears, and is off. Suppose he lands at another hatchery in the next state and makes that same offer. Would you bet next month's pay check that your fellow fish culturist would not request exactly the same information that you did? I thought not - fish diseases are too important an item in the life of a hatcheryman to pass up any opportunity for information about them.

However, that isn't getting Santa his dime for a cup of coffee and a piece of pie. After a few more stops, the old boy will probably see that if on his return trip he is armed with some information on fish diseases for retail distribution, his reward will be no slab and java but a ten-course roast turkey dinner. The most logical source for information on this subject would be, of course, a fish pathologist of which there are a few. Accordingly, Santa flies himself to the laboratory, slides down the fume hood and accosts the gaunt, long-nosed, sad-eyed

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The NEWSLETTER of the Fish Health Section of the American Fisheries Society is published four times annually in accordance with Section objectives and mailed to the Section membership in good standing at the time of publication. The use of company or registered trade names does not constitute an endorsement but serves only to keep the members informed. Contributions to the NEWSLETTER are encouraged and should be sent to one of the following Committee members no later than the 15th of the month preceding the date of publication to be included in the next quarterly issue. The Newsletter Committee members include:

Dr. Robert A. Busch (editor), Rangen Research Hatchery, Route 1, Hagerman, Idaho 83332

Dr. Brian Allee, New Business Research, Weyerhaeuser Co., 3400 13th Ave. S.W., Seattle, Washington 98134

Dr. John Gratzek, Department of Medical Microbiology and Veterinary Medicine, University of Georgia, Athens, Georgia 30602

Dr. Glenn L. Hoffman, Fish Farming Experiment Station, P.O. Box 860, Stuttgart, Arkansas 72160

Dr. Donald V. Lightner, Environmental Research Laboratory, Tucson International Airport, Tucson, Arizona 85706

pathologist who is sitting before his microscope, thinking - or perhaps he is just sitting.

"Path, old boy" says Santa, "I would like to know a lot about fish diseases."

Whereupon the pathologist, as he slowly uncrosses his squeaking knees, replies, "Santa, Old Top, so would I."

Which I might add, brings me to the point of this story. Just who can tell us all we want to know about fish diseases? The answer is easy. A six-letter word, beginning with N and ending in Y, meaning no one at all. Cheerful isn't it?

This most timely and true article was taken from Fish, Fredric, F. 1935. The bureau of fisheries disease service. The Prog. Fish Culturist. No. 8-9. It certainly can't help but make one wonder where we have been and where we are going. With this thought, I bid you farewell. Ed.

COLD WAVE... continued from page 1

sale price with an additional 25% expected to come later this spring. Importations of fish from Southeast Asia, which have in the past provided 5% to 10% of the U.S. supply, have rapidly increased to fill the void in the market. It is generally felt that imports will not be able to satisfy the sustained demand that is expected to last up to 18 months for some species. Commercial growers are already working together to inventory available stock and to spread it out as much as possible in a cooperative effort to rebuild the industry.

One final note of some brightness to this otherwise dark picture is that it seems one of the hardest hit species of the cold snap has been the walking catfish, an exotic import which had escaped to become a serious problem to the industry in recent years. (for comment or further information, contact the *EDITOR* or Mr. Dan Fix, Roberts Fish Farm, P.O. Box 650038, Miami, Florida 33165)

COMMITTEE NEWS & REPORTS

-MEMBERSHIP AND BALLOTING COMMITTEE-
ELECTION RESULTS FOR 1977 OFFICERS

The annual election of officers for the Fish Health Section for 1977 was recently completed by the Membership and Balloting Committee, Gary Wedemeyer, Chairman. Mr. James W. Warren was elected to serve as President of the Section for a single ten month term of office to bring the Section into phase with the election of officers in the parent society and the other sections. Dr. John A. Plumb was named President-Elect and will succeed Mr. Warren in office starting in November, 1977 for a full one year term. Dr. Rich Holt will be serving as Secretary-Treasurer and Mr. Doug Mitchum is the new Chairman of the Nominating Committee for 1977.

Our most sincere congratulations are extended to these people on their election along with the hope that 1977 may prove to be yet another year of growth and strengthening for the Section. It should also be noted that several members commented unfavorably on the fact that the address label of the NEWSLETTER was positioned in such a way as to be on the reverse side of the mail ballot. It is interesting to note that those truely desiring privacy were able to easily remove the adhesive mailing address label and that all of those who complained were noted to carefully write their return address on the ballot envelope!! In any case, our sincerist apologies to those who were truly offended. It was not done as a direct oversight but only to conserve printing costs and editorial space. (for comment or further information, contact Dr. Gary Wedemeyer, Chairman, Membership and Balloting Committee, Western Fish Disease Laboratory, Naval Air Support Activity, Bldg. #204, Seattle, Washington 98105)

-NOMINATING COMMITTEE-
CALL FOR NOMINATIONS FOR 77-78 OFFICERS

The Nominating Committee of the FHS would be pleased to receive suggestions for nominees for the following offices for terms beginning October 1, 1977: President-Elect, Secretary/Treasurer, and one (1) new member to the Board of Certification to serve a three-year term. Pursuant to Article VII, Section 1, paragraph a. of the FHS By-Laws, "Petitions signed by at least 10 Section members in good standing, recommending the nomination of consenting individuals will be reviewed by the Nominating Committee if submitted to the Chairman by May 15th". Please submit your petitions to Douglas L. Mitchum, Chairman, FHS Nominating Committee, Wyoming Game and Fish Research Laboratory, University Station Box 3312, Laramie, Wyoming 82071 by May 15, 1977.

-NEWSLETTER COMMITTEE-

The new Chairman of the FHS/AFS Newsletter Committee for 1977 is Dr. Steve Flickinger. All items for inclusion into the forthcoming issues should be forwarded directly to him along with any other pertinent business. His address is:

Dr. Steve Flinkinger, Chairman
FHS/AFS Newsletter Committee
Department of Fisheries and Wildlife Biology
307 Aylesworth Hall
Colorado State University
Fort Collins, Colorado 80523
(303) 491-5657

PROFESSIONAL NEWS & VIEWS

NEW CANADIAN FISH HEALTH PROTECTION REGULATIONS TAKE EFFECT IN 1977

The new Canadian Fish Health Protection Regulations, implemented in January 1, 1977, have replaced the old Salmonidae Import Regulations. This change reflects increased concern over the dissemination of infectious fish diseases via movements of cultured fish across international and interprovincial boundaries.

The new Regulations differ from the old most notably in that production facilities are certified rather than specific lots of fish destined for shipment, a larger number of diseases come under consideration, and interprovincial as well as international shipments are covered. Shipments of dead fish must derive from sources free of VHS and Whirling Disease, while in the case of live fish, the list of certifiable diseases has been expanded to include VHS, IHN, IPN, Ceratomyxosis, Furunculosis, Whirling Disease, Bacterial Kidney Disease, and Enteric Redmouth Disease. Inspections of production facilities are to be made on a twice yearly basis, in Spring and in Fall, by an approved Fish Health Official. Shipments of fish into Canada or across provincial boundaries must be accompanied by an Import Permit issued by a Local Fish Health Officier in the province of importation. Permits will be issued upon the receipt of a fish health certificate from the exporting facility.

A Manual of Compliance outlining approved administrative and technical procedures is available from the National Registry of Fish Diseases at the address below:

National Registry of Fish Diseases
Department of Fisheries and the Environment
580 Booth Street

Ottawa, Ontario
K1A 0H3 CANADA
Attention: Dr. Chris Frantsi or Margaret Small

Persons wishing to certify fish for shipment into Canada must obtain approval as a Fish Health Official. Application must be accompanied by an up-to-date curriculum vitae, three sample signatures and a description of available laboratory facilities and sent to the National Registry of Fish Diseases.

CONFUSION CONCERNING MYXOSPORIDAN DETECTION AND IDENTIFICATION NOTED

Recent referral specimens to the Fish Farming Experimental Station indicate some confusion regarding myxosporidan detection and identification. Coelozoic myxosporidans can best be found by examining wet squashes from the gall bladder, urinary bladder, ureters, and kidney tubules. Almost all histozoic myxosporidans, *Myxosoma cerebralis* excluded, are found in white cysts that can be seen with the naked eye or at 10X magnification under the dissection microscope. Only those, such as *Myxosoma cerebralis*, which usually do not produce visible cysts, should be searched for using the plankton centrifuge or digest techniques. The absence or presence of the glycogen vacuole is often important. Sometimes Lugol's iodine is not adequate; often better luck has been had using a small amount of Parasitology Iodine (10 g KI, 5 g I, and 100 ml H_2O). Dissolve the iodine in a small amount of water and the KI before adding the rest of the water. Some iodinophilous vacuoles survive storage, some do not. The shape of the mucoid envelope of fresh spores (Lom's India ink method - India ink 1 part, spore suspension 4 parts) and the surface topography (scanning electronmicrograph) in addition to spore and polar capsule morphology and size, valve thickness and sculpturing, trophozoite size, and sporoblast morphology are all needed for critical diagnosis. (for comment or further information, contact Dr. G. L. Hoffman, Fish Farming Experiemntal Station, P.O. Box 860, Stuttgart, Arkansas 72160)

MASSIVE EPIZOOTIC OF *Ambiphrya ameiuri* ON CHANNEL CATFISH

Ambiphrya ameiuri Thompson, Kirkegard, and Jahn, 1946 (*Scyphidia a.*) is a specific parasite of the catfish family. Some prefer to call it a commensal because, although it attaches to the fish, it feeds on other protozoa, bacteria, etc., that flow by. Some have considered it to be non-pathogenic so the following case report is presented to substantiate the fact that *A. ameiuri* can kill.

An Arkansas fish farmer brought 5 moribund, adult catfish to the Fish Farming Experimental Station for diagnosis on December 14, 1976 because there were several dead fish each day in a 3-acre pond stocked to full capacity. There were a few *Trichodina* present, but the bodies and the gills were practically carpeted wall-to-wall with *A. ameiuri*. No other cause of death could be found. Because of low water temperature and the fish not being fed, it is unlikely that there was an oxygen deficiency, however there may have been some other primary cause of disease. Even though *A. ameiuri* does not feed on fish tissue it is quite obvious that its presence, covering the body and gills, interfered with the normal functions of those organs. Electronmicrographic work on a related genus, *Scyphidia*, shows the mode of attachment to the host (Lom and Corliss, 1968, Trans. Amer. Microscopic. Soc. 87(4): 493-509). As with many other ectoparasites, if only a few are present, the fish show no signs of the disease. (for comment or further information, contact Dr. G. L. Hoffman, U.S. Fish and Wildlife Service, Fish Farming Experimental Station, P.O. Box 860, Stuttgart, Arkansas 72160)

AUBURN SHORT COURSE OPENING The Department of Fisheries and Applied Aquaculture at Auburn University has announced a limited number of openings available for its noted short course in diseases of warmwater fishes. All aspects of both infectious and noninfectious diseases will be covered by a group of invited instructors who are recognized authorities in their respective areas. The design is primarily for offering to fishery biologists from states involved in Auburn's Southeastern Cooperative Fish Disease Project and stresses practical application aspects of fish disease management. The course will be tought March 14-18 and requires a $100.00 registration fee to cover the twenty hours of lecture and sixteen hours of laboratory. For further information and registration contact Dr. Wilmer A. Rogers, Department of Fisheries and Applied Aquaculture, Auburn University, Auburn, Alabama 36830.

FISH DISEASE COURSE ANNOUNCED Dr. John B. Gratzek has announced the dates for the annual Fish Disease Workshop to be held at the College of Veterinary Medicine at the University of Georgia. The workshop will be held on September 12-14. Prospective participants should plan on an all day session on the 14th and to attend a banquet in the evening which will officially end the conference.

As in past years, the workshop will include lecture discussion periods interspersed with practical laboratory applications emphasizing the diagnosis of protozoan and bacterial diseases. Although aquarium fish are used extensively in laboratory periods, Dr. Gratzek points out that the principles of fish disease epidemiology, diagnosis and treatment apply to food fish as well as ornamental varieties. All sessions will be held in the newly remodeled air conditioned classrooms and laboratories in the Veterinary College.

Since attendance is limited early registration is recommended. A registration fee of 75 dollars should be made out to the University of Georgia and sent to:

Dr. Milton E. Adsit
Center for Continuing Education
The University of Georgia
Athens, Georgia 30602

Housing and meals are available at very modest rates at the Center for Continuing Education which is conveniently located close to the Veterinary College. Please indicate if you wish to reserve a room in the Center when submitting your application.

MEETINGS & MISCELLANY

NATIONAL WATER QUALITY WORKSHOP FEBRUARY 2 A National Water Quality Workshop is being jointly sponsored by the National Marine Fisheries Service and the Fish and Wildlife Service in cooperation with the Annual Convention of the Catfish Farmers of American and the Commercial Fish Farmer Magazine February 2, 1977 at the Braniff Place Hotel in New Orleans, Louisiana. Panel discussions during the day will include EPA discharge criteria, recycling freshwater, recycling brackish water, and water quality management. Special consideration will be given to applied aspects of disease prevention and control in recycling systems and water quality management. (for further information contact National Marine Fisheries Service, Number One Union National Plaza, Suite 1160, Little Rock, Arkansas 72201 or the Fish Farming Experimental Station, P.O. Box 860, Stuttgart, Arkansas 72160)

DRUG STATUS SEMINAR SCHEDULED MARCH 14-15 Two veterinary organizations are co-sponsoring a symposium March 14-15, 1977 in Washington, D.C. to air the problem of "the lack of drug availability for major diseases of minor species and minor diseases of major species". According to Dr. E. Thomas Thurber, President of the American Association of Industrial Veterinarians, "the initial portion of the meeting will be to identify the problem from the viewpoint of the producer or grower. This will include discussions on fish, sheep and goats, cattle, game birds, and ducks and geese. The second portion of the meeting will be to identify the problem from the professional viewpoint". This will include a discussion of "what drugs can be used legally, what drugs can't be used legally, and what is being done currently to circumvent the problem".

The symposium, co-sponsored by the AAIV and the American College of Veterinary Toxicologists (ACVT), will be held at the Marriott Twin Bridges Motor Hotel in Washington, D.C. An audience of about 200 people consisting primarily of industrial veterinarians, toxocologists, and USDA, FDA, and EPA personnel is anticipated. Dr. William A. Knapp of Flow Laboratories is the overall chairman for the meeting.

Dr. S. F. Snieszko will present information on the nature of fish disease problems and the need for more and better drugs and chemicals for their control. Dr. Snieszko, well known in the fish disease control field since 1946, characterized the current regulatory restrictions on therapeutics as similar to "calling a fire department to stop a fire only under the conditions that there be no damage done to the house or the environment by the water used to extinguish the fire".

Specific program information can be obtained from either of the two following sources:

Dr. E. Thomas Thurber
President, AAIV
Norden Laboratories, Inc.
P.O. Box 80809
Lincoln, Nebraska 68501
(402) 475-4541

Dr. William A. Knapp
Flow Laboratories, Inc.
7655 Old Springhouse Road
McLean, Varginia 22101
(703) 893-5900

(for comment or further information, contact James W. Warren, U.S. Fish and Wildlife Service, P.O. Box 252, Genoa, Wisconsin 54632)

TAVOLEK INTERNATIONAL SYMPOSIUM ON DISEASES OF CULTURED SALMONIDS APRIL 4-6 Tavolek, Inc. has announced an International Symposium to explore the major diseases affecting the health and worldwide production of salmonids to be held April 4-6, 1977 at the Sea-Tac Motor Inn, Seattle, Washington. The symposium is being sponsored by Tavolek, Inc. with the cooperation of Oregon State University at Corvallis. Co-chairmen are Dr. John L. Fryer of O.S.U. and Dr. Donald F. Amend of Tavolek. A distinguished faculty of 15 world renowned scientists will discuss the many problems associated with diseases in cultured salmonids including; Salmonid Aquaculture - Present Status and Future Trends, Dr. Ted Needham, Unilever, LTD., Aberdeen, Scotland; Nutritional and Feed Requirements of Salmonids, Dr. Gary Rumsey, USFWS, Cortland, New York; Environmental Requirements Needed for Fish Health, Dr. Gary Wedemeyer, USFWS, Seattle, Washington; Aspects of Defense Mechanisms in Salmonids, Dr. Gordon Bell, Pacific Biological Station, Nanamio, B.C., Canada; Surveillance and Erradication of Diseases from Hatcheries, Dr. Paul Vestergard-Jørgensen, Veterinary Serum Laboratory, Arhus, Denmark; Inspection and Certification of Fish, Dr. Peitro Ghittino, Institute Zooprofilattico Sperimentale, Turino, Italy; Tolerance of Fish to Disease, Dr. Jack McIntyre, USFWS, Corvallis, Oregon; Overview of Viral Diseases, Dr. M. Dorsen, Fish Pathology Laboratory, Grignon, France; Present Status of IPN Virus, Dr. Barry

Hill, Ministry of Agriculture, Weymouth, England; Viral Diseases of Cultured Salmonids in Japan, Dr. T. Sano, University of Tokyo, Tokyo, Japan; Current Status of Diseases of Cultured Salmonids in Hokkaido, Japan, Dr. T. Kimura, Hokkaido University, Hokkaido, Japan; Immunization of Salmonids, Dr. Trevor Evelyn, Pacific Biological Station, Nanamio, B.C., Canada; Myxosoma: Detection and Control, Dr. Ken Wolf, USFWS, Leetown, West Virginia; Detection and Control of Bacterial Infections, Dr. Pete Bullock, USFWS, Leetown, West Virginia; Present Status of Aeromonas Infections, Mr. Don McCarthy, Ministry of Agriculture, Weymouth, England. About 300 State, Federal and University scientists as well as professional fish hatchery managers are expected to attend the comprehensive meeting which will also include presentations on the research, development and production of fish health products by Tavolek, Inc., tours of their new research and development facilities, and refreshment and social hours. For comment or further information on the symposium, contact Dr. John L. Fryer, Department of Microbiology, Oregon State University, Corvallis, Oregon 97331 and for registration, contact Dr. Donald F. Amend, Tavolek Inc., 2779 152nd Avenue, N.E., Redmond, Washington 98052.

CRUSTACEAN HEALTH WORKSHOP APRIL 20-22 A workshop pertaining to the health of crustaceans will be held at the Flagship Hotel in Galveston, Texas on April 20-22, 1977. It is being sponsored by the National Oceanic and Atmospheric Administration, Galveston Coastal Fisheries Laboratory and by Texas A & M University. The tentative format calls for "state of the art" topics in the areas of infectious diseases, non-infectious diseases, defense mechanisms, laboratory techniques, disease prevention and control, and laws and regulations.

Each presentation will be limited to 15 minutes and each sessions will be followed by an informal roundtable discussion period. There will also be provisions for short informal "show and tell" activities. Abstracts will not be published but copies will be distributed during the meeting. (for further information contact Jorge K. Leong, National Marine Fisheries Service, 4700 Avenue U, Galveston, Texas 77550)

PROCEEDINGS AVAILABLE Proceedings of the 27th Annual Northwest Fish Culture Conference held December 1-2 in Twin Falls, Idaho will be available from Conference Chairman G. W. Klontz after February 15, 1977. The Conference was well attended by fish culturists from throughout the Northwest and across the country. Excellent papers on game, anadromous, and food fish culture, management, nutrition, disease control and prevention, and genetics were heard. Many conference attendants took part in tours of the famous commercial trout growing facilities in the nearby Snake River canyon. All registered conference attendants will receive the Proceedings automatically without charge. Those who were not registered can receive a copy of the Proceedings by remitting $5.00 to Dr. G. W. Klontz, Fishery Resources Program, University of Idaho, Moscow, Idaho 83843.

PROFESSIONAL CORRESPONDENCE ON CRUSTACEAN HEALTH ESTABLISHED The *LETTER ON CRUSTACEAN HEALTH* has been recently established as an informal communication bridge among individuals interested in crustacean health and disease. LOCH is intended as a correspondence and not a formal publication with contents being based on information provided by participants. Letters are mailed when sufficient material has been gathered or when there are special messages which require and warrent immediate distribution to participants. The correspondence stresses items concerning the overall health

of crustacea including physiology, nutrition, morphology, histology, hematology, developmental biology, behavior, infectious diseases, non-infectious diseases, etc. More than 120 individuals have already expressed an interest in the publication and foresee it as filling an important role in the rapidly expanding area of crustacean culture. (for comment or further information, contact Jorge K. Leong, National Marine Fisheries Service, 4700 Avenue U, Galveston, Texas 77550)

DIRECTORY OF ANIMAL DISEASE DIAGNOSTIC LABORATORIES MADE AVAILABLE

The Veterinary Services Laboratory of the U.S. Department of Agriculture is expanding its *Directory of Animal Disease Diagnostic Laboratories* to include those facilities involved in aquatic animal disease diagnosis in 1977. Information in the publication is provided as a guide to where various types of diagnostic laboratory tests are available within federal, state, university, and private facilities. A single page of the directory is devoted to each laboratory. Laboratories listed are arranged by state and city in which they are located. Laboratory listings are also cross indexed by their affiliation and function. Information provided on each laboratory includes the name, name of the director, address, phone, who may submit specimens, the major species accepted for examination, and the specific services and procedures offered in virology, bacteriology, parasitology, gross pathology, clinical pathology, histopathology, serology, mycology, and toxicology. (for further information contact U.S. Department of Agriculture, Veterinary Services Laboratory, Biometrics and Data Systems, P.O. Box 70, Ames, Iowa 50010)

PROFESSIONAL OPPORTUNITIES

FISH DISEASE AND NUTRITION RESEARCH POSITION AVAILABLE

The Fisheries Division of Rangen, Inc. is presently seeking applications for a full time position at their new Fish Pathology Laboratory and Research Hatchery. The anticipated position will involve assistance in the clinical diagnostic and certification section of the laboratory as well as the opportunity to undertake directed research into various areas of fish disease and nutrition. Applicants should have pertinent training and expertise in more than one of the following areas including but not limited to virology, bacteriology, parasitology, histology, immunology, physiology, biochemistry, and nutrition. Primary consideration will be given to people with a bachelor's degree and experience or a master's degree. The position will be filled no later than June, 1977. Salary will be commensurate with training and experience. Please send resume, curriculum vitae, salary requirements, and the names of three potential references to Dr. Robert A. Busch, Rangen Research Hatchery, Route 1, Hagerman, Idaho 83332

RESEARCH FELLOWSHIP IN MARINE PARASITOLOGY

A research fellowship in the field of marine parasitology is being funded by the Australian Fishing Industry Research Trust Account. The initial offering is for a one year stipend with an extention for an additional two years likely if satisfactory progress is made. Salaries are under review but are currently set at $A13,033 to $A20,619 plus one economy air fare to Brisbane. Minimum qualifications include a Ph.D. degree in a relevant field. (for further information, contact Dr. H. M. D. Hoyte, Head, Department of Parasitology, University of Queensland, St. Lucia, Brisbane, Australia 4067)

1977 Fish Health Section Fees Due

Annual membership fees for the Fish Health Section for 1977 are now due. As approved by the Executive Committee of the FHS during the Second Biennial Workshop last year, the membership fee is now $5.00. This is the first increase in dues for the Section since its beginning over four years ago and reflects the increased costs of operation as well as significant increases in services to the membership. Please take a moment to send in your dues right now. With the small membership of the Section, every delinquent member causes tremendous hardship on the tight Section budget.

Membership in the Fish Health Section of the American Fisheries Society is available to and encouraged for all persons interested in aquatic animal health and furthering the stated objectives of the Section. By charter, individual membership in the Section is open only to those individuals who are members in good standing of the parent American Fisheries Society. AFS membership applications are available from the Secretary-Treasurer or Chairman of the Membership and Balloting Committee. A special library subscription rate for the FHS/AFS NEWSLETTER is available to qualified institutions at an annual rate equal to the current annual membership fee.

Please fill out the attached blank for either new or renewal membership today. Annuals dues in the amount of $5.00 are payable by personal check or money order made out to the Fish Health Section/AFS. Mail your completed application and payment to:

Ms. Diane Godsey Elliott, Chairman
FHS/AFS Membership and Balloting Committee
Tavolek Laboratories, Inc.
2779 152 Avenue, N.E.
Redmond, Washington 98052

pd 2-16-77

APPLICATION FOR MEMBERSHIP
IN THE FISH HEALTH SECTION OF THE AMERICAN FISHERIES SOCIETY
-1977-
( ) new member ( ) renewal

NAME:_____

ADDRESS:_____

_____

CITY:_____ STATE:_____ ZIP:_____

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

Dr. Robert A. Busch, Editor
FHS/AFS NEWSLETTER
Rangen Research Hatchery
Route 1
Hagerman, Idaho 83332

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Stuttgart, AR 72160