FISH HEALTH SECTION AFS NEWS LETTER

Volume 14, Number 5 October 1986

PRESIDENTIAL MESSAGES - PAST AND PRESENT

FROM THE PRESIDENT

Wilmer A. "Bill" Rogers
Fisheries and Allied Aquacultures, Auburn Univ. AL 36849

First of all, I am very honored to have been elected President. My campaign pledge was to serve to the best of my ability and, with your support, I think we can have a good year.

For several years now I have thought, along with a number of other people, that we should have a North American Journal of Fish Health. I was recently informed by our AFS Executive Director, Carl Sullivan, that the AFS would support such a Journal. We have a lot of details to work out but I think something along the lines of PFC would be ideal. We could subscribe to it when we pay our annual dues. Perhaps support from advertising could keep the costs of printing down so everyone could afford it. We now need a volunteer to be editor and get the Journal started. I am assigning an ad hoc committee to investigate possible sources of publishing support.

Other committee assignments are almost complete. The standing committees have been appointed and several ad hoc committees are being assigned.

For some time I have been bothered by not having a list of certifiable pathogens. The Blue Book originally was to have uniform technical procedures and professional standards in fish pathology. This, for the most part, has been established, but I think it is time to expand our horizons. As a step in the new direction, I am appointing a committee selected and headed by Dennis Anderson to evaluate pathogen criteria and to come up with a classification of pathogen severity and a list of certifable diseases that would be adopted nationally. Several recent events have pointed out the need for such an acceptable system. The members of this committee would be appointed from government, university, and private organizations.

Another ad hoc committee has been suggested by Emmett Shotts to evaluate and reaffirm the standardization of the procedures used in identifying fish bacteria. Emmett will head this committee and members will be appointed from a number of diagnostic laboratories from around the country.

The ad hoc Examination Review board headed by John Fryer will be active this year trying to get the testing for Fish Pathologist under way.

The International Meeting is being planned for mid-July of 1988 and will be held in Vancouver, B.C. with Trevor Evelyn hosting the meeting. Next year the annual meeting will be held in Baton Rouge, LA with Ron Thune as host. Both the Eastern and Midwest Fish Health workshops will meet with the 1987 annual meeting.

As you can see, there are many things going on in our Section. I am grateful to all of you who so willingly serve on the committees. Please feel free to contact me if I can serve you or if you have any ideas of how better to meet the goals of the Fish Health Section.

FROM THE PAST-PRESIDENT

John Rohovec
Microbiology, OSU, Corvallis, OR 97331

Upon completion of my term as president of the Fish Health Section, I want to take this opportunity to express my gratitude to a supportive, concerned membership and especially to those individuals who actively participated as committee chairmen and members. Identification and special recognition are deserved by some individuals. Among these are Kevin Amos and his Technical Procedures Committee. They worked diligently and produced the 3rd Edition of the Blue Book, a document of which the Section can be proud. Doug Mitchum and the Board of Certification and John Schachte and the Professional Standards Committee served admirably to insure that high quality individuals represent our profession. Pete Bullock and the members of his staff at the National Fish Health Research Lab did a great job of organizing our annual meeting in West Virginia. They arranged and conducted an outstanding conference. A special commendation goes to Doug Anderson. Doug has served as our secretary/treasurer for several years. He has kept accurate accounts of the Section's proceedings and has maintained us fiscally. He has performed these duties uncomplaining for a long time and deserves our thanks.

The Fish Health Section has done many positive things and has some higher aspirations and goals. I encourage the membership to work with President Rogers to address them. The International Conference to be held in 1988 will require much work and organization; the written examination for certification of fish health professional is nearing completion, but will demand continual updating; and already the 4th edition of the Blue Book is being conceived. Those activities are basic to our Section, and in the coming year I hope they will be supported by the membership. In addition, I hope each member will become an active recruiter for new members to the Section. Although shellfish pathologists are not excluded from our group, they have not been as involved as those interested in finfish. I encourage the Section to seek their participation.

Another concern which I believe warrants the attention of the Fish Health Section is the revision of Title 50, the U.S. law which regulates the import of salmonids into the country. The law is currently being reviewed by the USFWS and input from the FHS is appropriate. Finally, I urge the membership to take an active role and support Bill Rogers and his committees in the coming year.

BE SURE TO RETURN ENCLOSED QUESTIONNAIRE!

FHS OFFICERS AND COMMITTEES 1986-87

EXECUTIVE COMMITTEE

Voting Members
Bill Rogers, Chairman and President, FHS
Ron Hedrick, President-Elect
John Rohovec, Immediate-Past President
Doug Anderson, Secretary-Treasurer
Tony Amandi, Chairman, Nominating Committee

Non-Voting Members (Chairmen of Standing Committees)
Jim Winton, Newsletter and Publications Committee
John Rohovec, Awards Committee
Randy MacMillan, Membership and Balloting Committee
John Schachte, Professional Standards Committee
Ron Goede, Technical Procedures Committee
John Grizzle, Archives Committee
Charlie Suppes, Time and Place Committee

STANDING COMMITTEES

Nominating
Tony Amandi, Chairman
Charlie Smith (2 yrs.)
Craig Banner (3 yrs.)

Newsletter and Publications
Jim Winton, Chairman
Dave Ransom
Drew Mitchell
Jack Gratzek
John Rohovec

Membership and Balloting
Randy MacMillan, Chairman
Pete Taylor

Technical Procedures
Ron Goede, Chairman
Kevin Amos
Dennis Anderson
Rod Horner
Jim Warren

Professional Standards
John Schachte, Chairman
Jim Carlisle
Doug Mitchum
John Cvitanich
To be named

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

Awards
John Rohovec (1 year)
Ron Hedrick (2 years)
Pete Bullock (3 years)

Archives
John Grizzle (1 year)
Roger Herman (2 years)
Margaret Ewing (3 years)

Time and Place
Charles Suppes (1 year)
Ron Thune (2 years)
Paul Reno (3 years)

BOARD OF CERTIFICATION
(Elected)
Joe Lientz (1 year)
Marshall Beleau (2 years)
Paul Bowser (2 years)
Joe Sullivan (3 years)
Drew Mitchell (3 years)

AD HOC COMMITTEES

Directory
Rowan Gould

International Meeting (1988)
Trevor Evelyn, Chairman
Kevin Amos
John Plumb
John Rohovec
Jim Winton
Richard Heckman

Program (1987 Meeting)
Ron Thune
John Hawke
Ron Goede
Paul Reno
Rocco Cipriano

Examination Review Board
John Fryer, Chairman
John Plumb
John Rohovec
Trevor Evelyn

Pathogen Evaluation Criteria
Dennis Anderson, Chairman
Chris Horsch, Bill Fletcher, Ron Major, Drew Mitchell, Pete Bullock, Rich Holt, Kathy Hopper, Dave Locke, Pete Walker, Doug Mitchum, Martin Chen, John Hnath, Charles Suppes, Rod Horner, Ken Stark, Dave Ransom, Bill Paterson, Nancy Wood, Jim Khars, Jim Malone, Evelyn Sawyer, Ken Cline, Courtney Gustafson, G.L.C. Kreamer, Ron Hedrick, Paul Reno, Ron Thune, Tom Wellborn, Dave Cone, Steve Flickenger, Jim Winton, Frank Hetrick, John Plumb

Procedures Evaluation
Emmett Shotts, Chairman
John Hawke, Yolanda Brady, Phyllis Barney, Cliff Starlipper, Howard Jackson, Ron Hedrick, Diane Elliot, Robert Durborow

Editorial Support
Doug Anderson, Chairman
Pete Bullock
John Plumb
John Rohovec
Randy MacMillan

FISH HEALTH SECTION COMMITTEE REPORTS

NOMINATING

During the month of April 1986 the Nominating Committee selected candidates for President-elect, Nominating Committee (2-year and 3-year positions) and board of certification. The Nominating Committee two- and three-year positions are a one-time elective office called for by recent bylaw changes. The candidates selected and submitted to the Section for the 1986-87 election year are as follows:

President-Elect
Ronald P. Hedrick
Rodney W. Horner

Nominating Committee
Two-year term
Charlie Smith
Emmett Shotts
Three-year term
Craig Banner
Frank Hetrick

Board of Certification (Elect two)
Joseph R. Sullivan
John G. Hnath
Howard M. Jackson
Thomas E. Schwedler
Andrew J. Mitchell

John H. Schachte, Jr., Chairman

MEMBERSHIP AND BALLOTING

As of June 30, 1986, there were 470 members in the Fish Health Section. This is an increase of 4.9% (23 new members) compared to June 30, 1985.

Two separate ballots were cast during the past year. A change in Section by-laws was unanimously approved by the membership. Election of a president-elect, and members of the Board of Certification (two new members), and Nominating Committee (one for a two-year term and one for a three-year term) are currently being elected. This election was completed on August 1, 1986 and the results are:

Ronald P. Hedrick - President-elect
Charlie Smith - Nominating Committee (2-year term)
Craig Banner - Nominating Committee (3-year term)
Andrew J. Mitchell - Board of Certification
Joseph R. Sullivan - Board of Certification

Randy MacMillan, Chairman

TECHNICAL PROCEDURES

This past year has been fruitful for the Technical Procedures committee - a committee whose name could well be changed to the "Blue Book" committee. Group members dedicated their time to writing, editing and reviewing the Blue Book so that it could be published in December, 1985.

No formal meeting of the committee was held; however, correspondence was received from the members to the chairman usually in the form of edited rough drafts. Additional communications were not deemed necessary.

As I alluded to in the first sentence, I propose that the Fish Health Section members entertain the idea of changing the name of this group to the "Blue Book" committee. Every five years a new chairman, or editor if you prefer, would be appointed with the primary charge of updating the methods of defection for fish pathogens. Changes in fish health technology are occurring rapidly enough to necessitate a five-year publishing cycle. In so doing we'd have a better definition of committee structure and function. Since my term as chair for this group is through, I would like to wish the new chairperson and members good luck with their endeavor.

Kevin Amos, Chairman

FISH HEALTH SECTION COMMITTEE REPORTS (continued)

PROFESSIONAL STANDARDS

During the past year the chairmanship of the Professional Standards Committee has changed. I feel it is appropriate for the Section to recognize the tireless efforts of past chairman Paul Janeke. The Section is indebted to Paul for his perseverance in the formation and administration of the fish health inspector and fish pathologist certification programs.

Since September 1985 the committee has processed and issued three certificates for fish health inspector and one for fish pathologist. One appeal was processed and completed in favor of the appellant. At present there is one appeal pending.

The major item of unfinished committee business is the fish pathologist certification written examination. To date no applicants have inquired about the examination. However, a pending appeal may end in an application for examination. In order to preserve the integrity of the certification program it is imperative that the examination process be in place at an early date. According to committee files 239 questions for the examination have been submitted to the examination review board. I have recently learned that the review process is yet incomplete. However, the number of available questions indicates that following review, we will be far short of the minimum 300-500 questions that the committee agreed is desirable, if not mandatory, for a quality examination. Therefore, while I will be initiating steps shortly to increase this number, I am asking that this matter and its importance be stressed to the membership at this year's meeting.

The committee is presently short one member following the April 1986 resignation of Bev Larson. This coupled with the difficulty of communicating with another member who has been between jobs, has caused considerable delays in conducting committee business. I will propose several changes in committee composition and tenure at this year's meeting in an attempt to resolve some of this committee's administrative problems.

John H. Schachte, Jr.
Chairman

NEWSLETTER and PUBLICATION

Publication of the Newsletter continues to consume much of the Section budget. The editors are seeking advertisements to help defray these costs. The addition of a hundred new members would help the situation considerably. Most of our expense goes toward typesetting and lay-up, so extra copies of the Newsletter are quite inexpensive. The editors appreciate the many articles and notes contributed by Section members during the year. We will require continued assistance in order to maintain the type of Newsletter we have been producing.

There has been some discussion of exploring the formation of a special category of FHS membership for those outside North America. This would allow fish health researchers and libraries overseas to join the Section and receive the Newsletter at a cost which reflects the additional mailing expense but without the requirement of joining the AFS itself.

The Section sold 309 copies of the Third Edition of the *Fish Health Blue Book* to members at the reduced price of $9.00 each. This special price has now expired. After mailing expenses, the Section netted $2544.16. In addition, 72 books have been sold by the AFS at $12.00 or $15.00 each. After the handling charge imposed by AFS, the Section has netted over $700.00 from this source. The original cost of publication was $4280.21, thus approximately 100 more copies of the book will have to be sold to recover our expenses. After that, the Section will receive most of the proceeds from the sale of the book. Formerly, the FHS received no money from the Blue Book.

James R. Winton, Chairman

BOARD OF CERTIFICATION

During the past year, 5 Fish Health Inspectors (FHI) have been certified. Two FHI's have been recertified for an additional 5 year period. At present, there are 2 FHI applications on file awaiting letters of recommendation and review by the committee.

Currently, there are 33 active certified FHI's (plus 1 retired FHI).

During the course of this certification program 34 of 50 (68%) applicants for FHI have been certified.

Also, during the past year 3 Fish Pathologists (FP) have been certified. There are 9 FP applications on file in various stages of being completed for committee review.

Currently, there are 51 active certified FP's (plus 1 honorary FP).

During the course of this certification program 51 of 60 (85%) applicants for FP have been certified.

The above data is summarized in the following tables:

Fish Health Inspector

Total Number of Applicants	50
Number Certified	34 (68%)
Number Not Certified	16 (32%)
Five-Year Recertifications	13

Fish Pathologist

Total Number of Applicants	60
Number Certified	51 (85%)
Number Not Certified	9 (15%)

Douglas L. Mitchum, Chairman

FINANCE

The FHS treasury is carrying 2 accounts combined in a SuperNow Account at the bank of Charles Town, WV. The General Account balance 7/18 is $1415.44, the Certification account: $2869.38. The major expense this year was the publication of the Fish Health Section Blue Book at $4280.21; we expect to recover most of that in sales within the next year. Publication of the Fish Health Section Newsletter is averaging about $2000 per year. Annual meeting expenses have been covered by registration fees and donations.

Next year we may have to consider raising the annual dues, now set at $5.00/year.

Doug Anderson, Chairman

FISH HEALTH SECTION/AMERICAN FISHERIES SOCIETY INTERNATIONAL CONFERENCE ON FISH HEALTH

Vancouver, British Columbia, Canada
July 19, 20, 21, 1988

Topics in any of the following broad fields, should preferably deal with old or emerging fish health problems and/or their possible solutions: virology, bacteriology, mycology, parisitology, oncology, immunology, and nutrition.

The intent is to publish the proceedings. More details will be forthcoming. For further information contact:

T.P.T. Evelyn
Pacific Biological Station
Nanaimo, B.C. V9R5K6
Canada

Telephone: 604-756-7066

REPORT FROM 10th ANNUAL MEETING

The Fish Health Section held its 10th Annual Meeting in conjunction with the 11th Annual Eastern Fish Health Workshop. The sessions were sponsored by the U.S. Fish and Wildlife Service, National Fish Health Research Laboratory and were held at the Sheraton Inn, Martinsburg, West Virginia, July 22-24, 1986. Registered attendees numbered 143 and 60 technical papers were presented. General topics of different sessions included fish tumors, non-infecting diseases, viral, parasitic and bacterial diseases, improved diagnostic techniques, fish immunology and therapeutic advances. A poster session was also included in the technical program. The presentations are listed and the abstracts are available for five dollars ($5) from Jim Winton, OSU Marine Science Center, Newport, OR 97365.

J.C. Harshbarger. Historical background and overview of tumors.

M.C. Schmale. Evidence for transmissibility of Schwann cell tumors in the bicolor damselfish.

R.L. Herman. Squamous cell carcinoma in rainbow smelt (*Osmerus mordax*).

G.L.C. Kreamer. Proliferation of mitochondria-rich cells in the gills of cultivated striped bass: possible role of ionic imbalance.

J.E. Bodammer and R.A. Murchelano. Development of vacuolated cells in diseased liver of winter flounder from Boston harbor.

W. Hargis. Cataracts in estuarine fishes.

W.K. Vogelbein and R.M. Overstreet. Histopathology of the internal anchor tag in the spot, *Leiostomus xanthurus.*

G.D. Marty and R.C. Summerfelt. Tissue reaction of channel catfish to dummy transmitters surgically implanted in the peritoneal cavity.

R. Soderberg. Effects of sodium chloride on toxicity of un-ionized ammonia on lake trout.

E.B. May, R.O. Bennett, R. Lukacovic, and H.J. King, III. Observations on striped bass larval development with special reference to formation of the swim bladder and kidney.

R.P. Hedrick, W. Eaton, T. McDowell, and W. Wingfield. A serological comparison of five herpesviruses from salmonid fishes.

P.E. McAllister, W.J. Owens, and T.M. Ruppenthal. Isolation of infectious pancreatic necrosis virus from fractionated brook trout ovarian fluid.

K.W. McAllister and P.E. McAllister. Infectious pancreatic necrosis virus: transmission from virus carriers striped bass to brook trout.

P.E. McAllister. Production of monoclonal antibody against viral hemorrhagic septicemia virus.

F.G. Kern. The recent trends of MSX *Haplosporidium nelsoni* in New England and Mid-Atlantic oyster stocks.

T.K. Sawyer. Role of amoebae as fouling organisms on gills of fish and shellfish.

E.J. Noga. In vitro propagation of the marine parasite *Amyloodinium.*

M.S. Ewing, K.M. Kocan, and E.C. Short. Invasive *Ichthyophthirius* reconsidered.

R.P. Hedrick, M.L. Kent, J.S. Foott, R.J. Toth, and D. Manzer. Proliferative kidney disease (PKD) of salmonid fish: recent developments.

C.H. King and E.B. Shotts. Protozoan interaction in bacterial fish diseases.

R.L. Thune and J.P. Hawke. Light and electron microscopic study of proliferative gill disease in channel catfish.

R.A. Robohm and W.E. Rose. The use of plasmid profiles and computer-assisted analysis to evaluate the Minitek system for identification of pathogenic marine bacteria.

J.D. Teska and E.B. Shotts. Use of the automated Quantum II for biochemical identification of bacterial fish pathogens.

E.B. Shotts and T.C. Hsu. Update on the classification of the yellow pigmented bacteria (YPB).

C.E. Starliper and E.B. Shotts. Starch gel electrophoresis of selected yellow pigmented bacteria.

F.D. Corral and E.B. Shotts. Attachment and invasion of *Flexibacter columnaris.*

T.C. Ardelt and H.W. Huizinga. Effects of behavioral stress on *Cichlasoma nigrofasciatum* infected with *Aeromonas hydrophila.*

D.L. Finco-Kent and R.L. Thune. Phagocytosis of *Aeromonas hydrophila* by channel catfish leukocytes.

A. Deuter, S. Barghouthi, R. Byers, and L.W. Clem. A unique siderophore from *Aeromonas hydrophila:* is it a major virulence factor for fish?

J.M. Bertolini. Relationship of antigenic type to virulence of *Edwardsiella tarda* in striped bass and Atlantic salmon.

W.T. Corbett, E.J. Noga, J.F. Lelvine, K. Townsend, R.A. Bullis, and C.P. Carlson. Kidney biopsy for the diagnosis of enteric redmouth disease.

D.A. Neumann and M.R. Tripp. Localization of radiolabeled *Yersinia ruckeri* in channel catfish: influence of route of administration.

R.C. Cipriano, W.B. Schill, S.W. Pyle, and R. Horner. An epizootic in chinook salmon caused by a sorbitol-positive strain of *Yersinia ruckeri.*

S.W. Pyle and R.C. Cipriano. Development of ELISA for the detection of *Yersinia ruckeri,* cause of enteric redmouth disease.

W.B. Schill and R.C. Cipriano. Serum resistance mechanisms of *Yersinia ruckeri.*

E.G.-H Lee and M.R. Gordon. IFAT field test for *Renibacterium salmoninarum* in eggs from farmed chinook salmon spawners.

J.G. Daly and R.M.W. Stevenson. Cell surface characteristics of *Renibacterium salmoninarum.*

C.K. Arakawa and J.S. Rohovec. Monoclonal antibodies directed against *Renibacterium salmoninarum.*

B. Hjeltnes, K. Andersen, H-M. Ellingsen, and E. Egidius. Pathogenicity of a *Vibrio* sp. isolated from Atlantic salmon (*Salmo salar*) suffering from Hitra disease.

C.C. Grant and D.L. Evans. Identification and characterization of antigenic determinants recognized by nonspecific cytotoxic cells (NCC) from catfish.

K.R. Byrne. Ultrastructure of leukocytes in the Atlantic salmon (*Salmo salar*).

V.S. Blazer and R.E. Wolke. Macrophage aggregates as monitors of fish health in a thermally impacted population of largemouth bass.

N.W. Miller, R.C. Sizemore, A. Deuter, and L.W. Clem. Cellular and interleukin requirements for channel catfish immune responses.

D.D. Ourth. Bacterial sialic acid and alternative complement pathway activity of channel catfish.

R.C. Simon and W.B. Schill. Transferrin genotypes and long-term survival in coho salmon.

C.F. Ellsaesser and L.W. Clem. Stress-mediated immunosuppression in channel catfish.

D.P. Anderson, O.W. Dixon, and B.S. Roberson. In vitro immunosuppression by metals in trout splenic sections.

J.E. Bly, T.M. Buttke, M.A. Cuchens, and L.W. Clem. Temperature-mediated processes in teleost immunity.

S.J. Wechsler. Humoral response of striped bass to infectious pancreatic necrosis virus.

R.C. Cipriano. Adaption of the dot blot immunoassay to detect antibody in fish mucus.

W.D. Paterson, P. Greer, and D. Airdrie. Prevention of furunculosis by vaccination.

J.A. Plumb and E.E.d Quinlan. Winter vaccination of channel catfish against *Edwardsiella ictaluri.*

R.C. Cipriano. Immunization against *Yersinia ruckeri:* lack of correlation between serum antibody and protection.

I. Keith, W.D. Paterson, and D. Airdrie. Toward prevention of gaffkemia in lobsters.

T.P.T. Evelyn. Moist air incubation of salmonid eggs — a potentially useful procedure for enhancing the efficacy of erythromycin against intra-ovum *Renibacterium salmoninarum.*

G.L. Bullock and D. Bowling. In vitro sensitivity of the gram-negative fish pathogens to oxolinic acid.

M.H. Beleau. Romet-30 for catfish: the registration process.

E.B. Shotts, D. Waltman, and D. Wooley. Plasmid mediated antibiotic resistance in *Edwardsiella ictaluri.*

K.H. Amos. The current and future status of the fish health "Blue Book."

Blanch, A.R., D.P. Anderson, O.W. Dlixon and R.C. Cipriano. Humoral antibody response in rainbow trout to different bacterins of *Aeromonas salmonicida.*

Markiw, M.E. and Ken Wolf. Salmonid whirling disease: serology and antigenic analysis support the proposed relatedness of *Myxosoma cerebralis* and *Triactinomyxon.*

Noga, E.J., M.J. Dykstra, and J.F. Levine. Ulcerative mycosis of estuarine fishes: biology and pathology of the fungal pathogen.

Holliday, T.L., R.C. Lantz, and D.E. Hinton. Direct transchorionic embryonated egg exposure in *Pimephales promelas* and *Oryzias latipes.*

FUTURE EVENTS

June 24-25, 1987. Western Fish Disease Conference. The 28th annual meeting will be held in Bozeman, Montana and hosted by the U.S. Fish and Wildlife Service. For further information contact Charlie Smith, USFWS, 4050 Bridger Canyon Rd., Bozeman, MT 59715. Phone 406-587-9265.

Summer, 1987. Fish Health Section Annual Meeting. The 11th FHS annual meeting will be held in Baton Rouge, LA. For information contact Ron Thune, LSU. Phone 504-346-3308.

July 19-21, 1988. International Fish Health Symposium. Plans for this meeting, to be held in Vancouver, B.C. Canada, are being developed by T.P.T. Evelyn, Pacific Biological Station, Nanaimo, B.C.. Phone 604-756-7066. Topics will include virology, bacteriology, mycology, oncology, and immunology. Suggestions for additional topics and sources of funding to support the meeting should be addressed to Trevor.

IHN WORKSHOP HELD AT DWORSHAK NFH

James Warren
USFWS - Suite 1, 9317 Highway 99, Vancouver, WA 98665

Epizootiology and control of infectious hematopoietic necrosis (IHN) of salmonids were the focal points of a May 14-15, 1986 workshop held at the Dworshak National Fish Hatchery near Ahsahka, Idaho. Thirty-three attending fish pathologists, researchers and fish culturists discussed topics covering modes of disease transmission, evidence for the IHNV carrier state, sources and reservoirs of infection, disease impacts on fish populations, IHN virus detection methods, and disease prevention or control strategies.

Highlights brought out during the workshop included:

1. Epizootiological data indicates vertical transmission of IHN virus occurs; but only rarely.
2. IHN survivors cannot be predicted to become life-long virus carriers; but some fish may.
3. Gills may be a major portal of entry for IHN virus.
4. Jim Winton, OSU-Newport, has a good supply of monoclonal neutralizing antibody for use in IHNV virology work.
5. Culling of infected brood stock may not prevent IHN outbreaks but individual testing of adults and culling may be a useful approach when egg transfers are planned.
6. Reservoirs of infection are poorly known. Further work is needed on the role of insects, algae, slime molds and other organic materials.
7. IHNV mutations may lead to future fatal cases of IHN in spring chinook salmon stocks.
8. Idophores used @75-100 ppm for up to 1 hour, during water hardening of eggs, may help prevent IHN.
9. The FWS lab at Seattle is testing anti-IHN chemicals. The antioxidant BHT may have promise.
10. A breakthrough in the development of an IHN vaccine may have occurred.

ISOLATION OF IHNV FROM NATIVE BRITISH COLUMBIA RAINBOW TROUT BROODSTOCK

Sally Goldes[1], Garth Traxler[2] and Glen Seaton[3]

[1]British Columbia Fish Health Lab, Fisheries Branch, B.C. Ministry of Environment, Pacific Biological Station, Hammond Bay Rd., Nanaimo, British Columbia, Canada V9R 5K6

[2]Fish Health and Parasitology, Department of Fisheries and Oceans, Pacific Biological Station, Hammond Bay Road, Nanaimo, British Columbia, Canada V9R 5K6

[3]Malaspina College, 900 5th Street, Nanaimo, British Columbia, Canada V9R 5S5

IHN virus has been isolated from tissues of spawning rainbow trout from Puntzi Lake (Chilcotin area). IHN was identified in the pooled tissues from one male and female out of 15 pools assayed. This is the first isolation of IHN from mature native British Columbia rainbow trout, thereby demonstrating that native rainbow trout may be a potential source of infection. In January 1986 an epizootic of IHN in Pennask Lake (Kelowna area) rainbow trout fingerlings at Summerland Hatchery (Okanagan Lake) forced the destruction of all hatchery stock (1.5 million fish). This was the first IHN epizootic in native cultured British Columbia rainbow trout. The isolation of IHN from native fish and recent IHN epizootic in cultured rainbow trout signals the need for rigorous testing of wild rainbow trout chosen for broodstock.

U.S. SUPREME COURT UPHOLDS BAN ON IMPORTATION OF BAITFISH

David O. Locke
Maine Department of Inland Fisheries and Wildlife Station #41, Augusta, ME 04333

The United States Supreme Court in a decision on June 23, 1986 stated: "Once again, a little fish has caused a commotion." This was in reference to three previous cases before the court involving small fish. This decision upholds by a vote of 8-1, a 27-year old State of Maine law that bans the importation of live bait fish into the state. A resident bait dealer had been found guilty of a two-count indictment in U.S. District Court in 1984 under the Lacey Act Amendments of 1981 which makes it a federal crime "to import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce . . . any fish or wildlife taken, possessed, transported or sold in violation of any law or regulation of any State or in violation of any foreign law." Robert J. Taylor of Argyle, Maine had been indicted for illegally importing more than 158,000 live golden shiners on Christmas Day, 1981. He violated a state statute, Title 12 MRSA, Sec. 7613 which states that "a person is guilty of importing live bait if he imports into this State any live fish including smelts, which are commonly used for bait fishing in inland waters." This law was enacted by the Maine Legislature in 1959 because the protozoan parasite *Glugea hertwigi* was known to be affecting rainbow smelt populations in nearby New Hampshire and it was feared that this parasite would spread to this state's smelt populations which are essential for the successful management of coldwater trout and salmon fisheries.

Mr. Taylor appealed the District Court decision to the U.S. Court of Appeals for the First Circuit and argued that the Maine law banning the importation of baitfish was an unconstitutional restriction of interstate commerce. The appellate court reversed the decision, agreeing with Taylor that the underlying state statute was an impermissible restriction of interstate trade. After failing to get the First Circuit Court to reconsider, the United States dropped out of the case and the State of Maine filed a lone appeal as an intervenor to the U.S. Supreme Court.

Although Maine officials conceded that their statute discriminates facially against interstate commerce, they felt that their law had adequately met the Commerce Clause tests of constitutionality in both the district and appellate courts. A prior case before the Supreme Court, *Hughes v. Oklahoma,* established a two-part constitutional test to a local regulation that discriminates against interstate trade: the statute must serve a legitimate local purpose, and the purpose must be one that cannot be served as well by available non-discriminatory means.

Expert witnesses for the government had testified that there were diseases and parasites in other geographic areas that did not occur in Maine, that would threaten indigenous fish populations. Also, it was pointed out to the courts that any large shipment of baitfish could inadvertently contain other species of fish or aquatic organisms that could be serious competitors or predators in Maine's unique ecosystems. Mr. Taylor had argued that an inspection of the source of a proposed importation would adequately reveal the threat of diseases, parasites and exotic aquaitc organisms. The prosecution experts further testified that although inspection procedures (FHS/AFS Blue Book) had been developed primarily for salmonid pathogens, they were not adequate for the detection of fish pathogens in the often times large baitfish farms. In fact, the expert witness for the defense agreed that no scientifically accepted procedures had been developed for the inspection of baitfish farms, because he maintained that they were not necessary.

The recent Supreme Court decision ruled that [the evidence amply supports the District Court's findings that Maine has made both showings. Under the "clearly erroneous" standard of review applicable to these findings, the Court of Appeals erred in setting them aside.] This decision reinforces our position that Maine's ecosystems are unique and should be vigorously protected from non-indigenous pathogens and aquatic species that could threaten our native fisheries. It will undoubtedly also strengthen state importation laws across the United States and make it easier for states to protect their native resources.

PROLIFERATIVE KIDNEY DISEASE (PKD) IN ARCTIC CHAR (*SALVELINUS ALPINUS*) FROM NEWFOUNDLAND

B.D. Hicks and H.W. Ferguson
Fish Pathology Laboratory, Department of Pathology, Ontario Veterinary College, University of Guelph, Guelph, Ontario NIG 2W1

In August 1985 and 1986 PKD was diagnosed from Arctic char submitted to our laboratory from a laboratory in Newfoundland. The following comments refer to the 1986 fish. Eggs were obtained from wild certified specific pathogen free stock (Canadian Fish Health Protection Regulations) from the Fraser River in Labrador and transported to the laboratory. Some of the fish were placed in a flow-through system supplied with surface water. Others were placed in a recirculating system with ozone treatment. The char were the only species in the system initially, but later in the year some Ouananiche (*Salmo salar ouananiche)* salmon (local land locked Atlantic salmon) eggs were placed in the system. Both groups of fish (recirculating and surface water) were placed in flow-through water in mid-June. In early July fish from the recirculating system began to die from severe PKD while the fish from the flow-through system did not begin to die until mid-August.

The reasons for this time differential are unknown but it is suggested that the Arctic char in the recirculating system were infected from the Ouananiche which shared the same water. The laboratory has been holding and breeding the Ouananiche for over 10 years with no serious mortality and mortality was low during the high char mortality. Other species of freshwater salmonids, including rainbow trout (*Salmo gairdneri*) and Atlantic salmon (*S. salar*) have been routinely held in the surface water with no pronounced mortality. The pond which supplies the surface water contains a number of native brook trout (*Salvelinus fontinalis*). These fish may be the source of infection for the fish supplied with surface water as has been speculated by Hedrick et al. (FHS/AFC Newsletter, Vol. 13(2)). The water in the recirculating system was U.V. sterilized but not the open system.

Since PKD is probably a "recently discovered" pathogen rather than a "new" or "exotic" pathogen in Newfoundland, it is tempting to suggest that Arctic char are acting as sentinel animals. Further studies examining the Ouananiche, Atlantic salmon and brook trout as possible reservoirs of infection are presently underway.

A HISTORICAL NOTE ON BACTERIAL KIDNEY DISEASE (BKD) IN CANADA

T.P.T. Evelyn
Pacific Biological Station, Nanaimo, B.C. V9R5K6 Canada

This note is intended for those history buffs interested in BKD.

The first account of BKD in Canada appears to have been that of Dr. D.C.B. Duff, who described the disease as occurring in a small, lower mainland hatchery near Culters Lake, British Columbia. At the time, Dr. Duff was unaware that there were already two published reports on the disease; one in 1933 involving Atlantic salmon in Scotland, and one in 1935 affecting hatchery-reared trout in the eastern United States.

Dr. Duff's account appeared in the Biological Board of Canada, Report of the Pacific Biological Station for 1937. It went under the heading "Diseases other than Furunculosis," and read: "During the period July-September, 1937, a number of the adult cutthroat trout maintained at Smith Falls Hatchery succumbed to a disease which had a superficial resemblance to furunculosis. We have been unable to cultivate *Bacterium salmonicida* from the lesions or organs of any of these trout during this period. Direct microscopic examination of the contents of closed lesions has revealed a small, Gram positive rod which cannot be cultivated upon the usual laboratory media. The organism is present in great numbers, in apparent pure culture, in smears from lesions. It may or may not be the primary cause of the disease. Attempts are being made to devise a medium which will permit the cultivation of this bacterium. A preliminary search of the literature has not yielded any suggestions as to the identity either of the disease or of the microorganisms."

Can there be much doubt that Dr. Duff was describing BKD? I think not.

EFFECTS OF SALTWATER ON THE PROGRESS OF PROLIFERATIVE KIDNEY DISEASE (PKD) IN CHINOOK SALMON (*Oncorhynchus tshawtscha)*

R.P. Hedrick[1] and D. Aronstien[2]

[1]Aquaculture and Fisheries Program, Department of Medicine, School of Veterinary Medicine, University of California, Davis, CA 95616

[2]Bodega Marine Laboratory, Bodega Bay, CA

The effects of saltwater on the development of proliferative kidney disease (PKD) among chinook salmon (*Oncorhynchus tshawytscha*) was examined. For many years chinook salmon reared at the Nimbus Hatchery (California Department of Fish and Game, CDFG) on the American River have suffered from PKD. Because of past difficulties caused by the disease (the etiology in earlier years was unknown but later determined to be PKD by D. Manzer, CDFG) the yearling chinook program was discontinued and the fish were instead transported in June and released into the Sacramento River delta near the San Francisco Bay.

We examined the progress of PKD in actively infected chinook salmon transferred directly to the Bodega Marine Laboratory and held in full-strength seawater (33 ppt). Six hundred fish were transported in July to the Marine Lab where they were divided equally into four 4-ft circular tanks receiving well water. Over a period of three days two of the tanks were transferred from fresh to full strength sea water and the remaining tanks were kept on fresh water. The water temperatures for both fresh and saltwater groups remained in the 13 - 15 C range during the course of the study.

An examination of 10 fish from each tank at the start of the experiment showed that there was a 55% prevalence of infection as determined by the presence of PKX cells observed in stained tissue sections. The prevalence of the disease among fish was similar in both the saltwater and freshwater groups over the study period (Table 1). However, PKD was still present in several fish examined in the saltwater group on day 53 although a majority of the fish had recovered as indicated by the absence of clinical signs and PKX cells. The only mortalities observed during the course of the study were among fish in the freshwater group where "ich" and *F. columnaris* infections were detected. Since both of these diseases are problematic at the hatchery it was presumed that the fish carried these at the time they were transported to the laboratory. Transfer to sea water was apparently quite effective in removing these paraistes as no mortality was observed (or associated with seawater acclimation) among these groups.

In conclusion, the progress of PKD was not impeded by transfer to seawater and instead the disease was found to linger longer than among parallel groups in freshwater. However, there was no apparent mortality associated with the disease although heavily infected fish were anemic and this would presumably render them less virogous than uninfected fish.

Table 1. Prevelance of PKX, the causative agent of proliferative kidney disease among chinook salmon held in either fresh or full-strength seawater

Date (day)	% of Fish with PKX‡* Seawater*	Freshwater
July 24 (0)	55	55
August 7 (12)	74	73
August 22 (27)	53	45
September 3 (39)	60	24
September 17 (53)	24	0

‡ 10 fish were removed from each of two duplicate tanks of saltwater or freshwater and examined for the presence of PKX cells and the accompanying pathology. The value shown is the average as calculated from data taken from duplicate groups.

* After transfer from Nimbus Hatchery, the fish were allowed to acclimate for four days and then they were changed to seawater (33ppt) over a period of three additional days. A parallel group of fish were held in well water of the same temperature (13 - 15 C).

POSITIONS AVAILABLE

ASSISTANT PROFESSOR

Applications are invited for a tenure-track appointment as Assistant Professor. Applicants should have a broad education in general microbiology, a Ph.D. degree, and post-doctoral or equivalent experience. The appointee will be expected to develop an active research program, and applicants are asked to indicate how their proposed research would contribute to, or complement, current research emphases of the Department on either microbial technology and fermentation, or microbial diseases of fish. The Department also has major research commitments in the fields of molecular virology, ultrastructure, and bacterial cell surfaces. The successful applicant will be required to contribute to the undergraduate and graduate teaching programs in microbiology. Information about the applicant's teaching experience and areas of teaching competence in microbiology should be provided. Applicants should send curriculum vitae and the names of three referees, by December 31, 1986, to The Chairman, Department of Microbiology, College of Biological Science, University of Guelph, Guelph, Ontario, Canada N1G 2W1. Position subject to final budgetary approval.

AQUATIC BIOLOGIST

Major Duties: Freshwater and Marine

1. Regular water quality analysis and interpretation of results.
2. Disease diagnosis and treatment of specimens.
3. Necropsies of specimens.
4. Preparation of artificial sea water.
5. Preparation and organization of laboratory records.

Qualifications Required

Master's degree with a specialty in aquatic animal health or parasitology, and a thorough grounding in marine and freshwater fish disease detection/treatment procedure. Candidates with a Bachelor's degree will be considered if they have these qualifications and three years of experience in an aquarium, aquatic laboratory, or aquaculture facility.

Salary: $18,000
Starting Date: Immediately
Position Open Until: October 1, 1986 or until an acceptable applicant is found, whichever is first.

For information, contact Roger Klocek, John G. Shedd Aquarium, 1200 South Lake Shore Dr., Chicago, IL 60605. Phone 312-939-2426.

AQUACULTURE POSITION AVAILABLE

Title: Research Technician III, fish disease diagnostics.

Location: Research and Extension Center, Mountain Horticultural Crops Research Station, North Carolina State University.

Qualifications: Candidates must have a BS degree in Fisheries, Aquaculture, Biology, or related field with training in cold-water fish disease diagnostics and aquaculture. Experience in a fish disease diagnostics laboratory is strongly preferred.

Responsibilities: The primary responsibility will be the operation and maintenance of a fish disease diagnostics laboratory providing support to the trout aquaculture industry in the mountains of western North Carolina. The technician will also be expected to participate in research projects and in extension demonstrations on topics related to trout aquaculture and fisheries including diseases, genetic manipulation, production, management, and aquaculture economics.

Employment Level and Salary: Full-time permanent position with all benefits of regular university staff. Salary range from $16,788 - 26,292, commensurate with education and experience.

Employment Date: Open immediately.

Application Deadline: Applications will be accepted through October 31, 1986, or until a suitable candidate is found.

Application Procedure: Letter of application, vita, letters of reference to:

Dr. Jeffrey M. Hinshaw
2016 Fanning Bridge Road
Fletcher, NC 28732-9628
(704) 684-3562

BRIEF REPORTS

We received no response to Keith A. Johnson's request for the U.S. Fish and Wildlife Service to comment on importation of live Atlantic salmon from Norway (see July, 1986 Newsletter). Keith had hoped for a response addressing the likelihood of importing disease agents and an outline of the U.S.F.W.S. Sampling Program for Imported Fish.

* * * * * *

Dr. I.D. Trombitsky is in need of fixed specimens of *Ambiphrya ameiuri,* especially those from channel catfish. He wants to compare the North American specimens with those from European hosts. If you have recent articles pertaining to this parasite, he would like copies. Send specimens & literature to: Dr. I.D. Trombitsky, ul. Roz 7/3, KV. 42, Kishinev - 38, 277038 USSR.

* * * * * *

Glenn Hoffman reported that problems of *Lernaea cyprinacea* infections were discussed at the Sixth International Congress of Parasitology at Brisbane, Australia, August 25-29, 1986. Glen commented that it was apparent that parasitologists of the world had not learned that Dimilin (Uniroyal Chemical Co.) had been used successfully to kill *Lerneae cyprinacea* nauplii at summer temperatures at Stuttgart, AK (FFES Annual Report, 1980).

* * * * * *

Glen Hoffman is revising his book, *Parasites of North American Freshwater Fishes* and predicts it will be completed in two years. The 1967 edition can still be obtained from The University of California Press, Berkely, CA 94720. $42.50.

* * * * * *

On August 29, Proliferative Kidney Disease was found for the first time at a WDF hatchery. The PKX organism was evident in kidney and spleen imprints from 1985 brood year fall chinook salmon. They are 22 fish/lb. (20.6g) and are being reared at the Elwha Channel near Port Angeles, Washington. At this time loss is stabilized at .2-.3%/day - it looks like we may lose 5-10% of the population. Kathleen Hopper, Washington Department of Fisheries, 115 General Administration Building, Olympia, WA 504.

* * * * * *

Dr. Glen Hoffman reports that Mexican workers would appreciate receiving any information on the care or diseases of trout, largemouth bass, bluegill, channel catfish, tilapia and carp. This information may be sent to Dr. Fernando Jimenez G., Universidad Autonoma de Nuevo Leon, Facultad de Ciencias Giologicas, Apartado Postal 367, Nuevo Leon, Mexico.

* * * * * *

J. Richard Arthur, BFAR-IDRC Fish Health Project, 3rd Floor Marcelo Building, 880 Quezon Avenue, Quezon City, Manila 3008, Republic of the Philippines has requested members to send copies of any reprints, journals or books on fish health that they can spare. He will refund postage charges if necessary.

PASSAGES

Jack Ganzhorn has taken a job as quality control microbiologist with Oregon Aqua Foods, 88700 Marcola Rd. Springfield, OR 97478, 503-746-4484.

ERRATA

In volume 14(2) page 5 of the Newsletter in line 6 of the article by Andrew J. Mitchell an error was made in the dosage of Praziquantel to be used and should read 0.1 gram not mg of the 100% active ingredient.

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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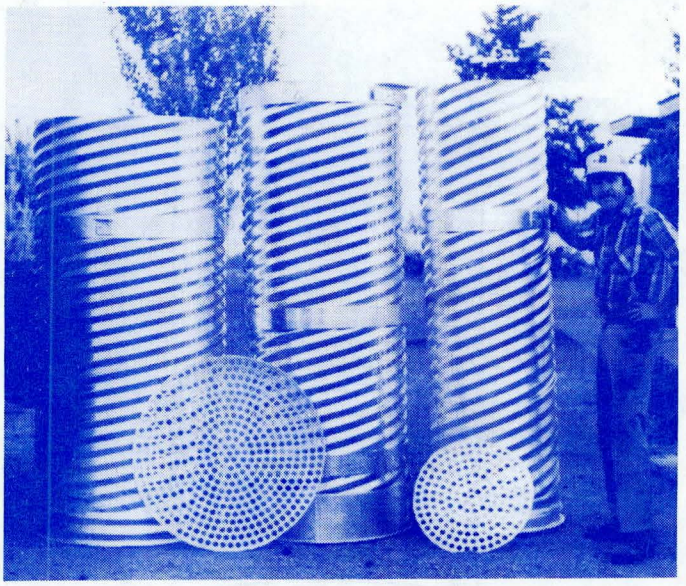
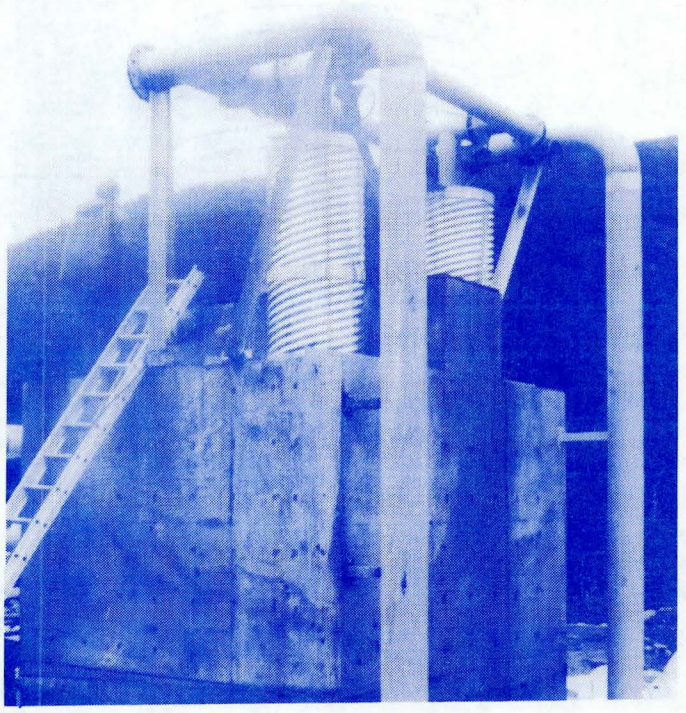
Normally depths up to 5' of plastic media as used in conjunction with distributor plates and underdrain supports.

Columns are normally sized for hydraulic loadings of 150 to 200 GPM/FT2

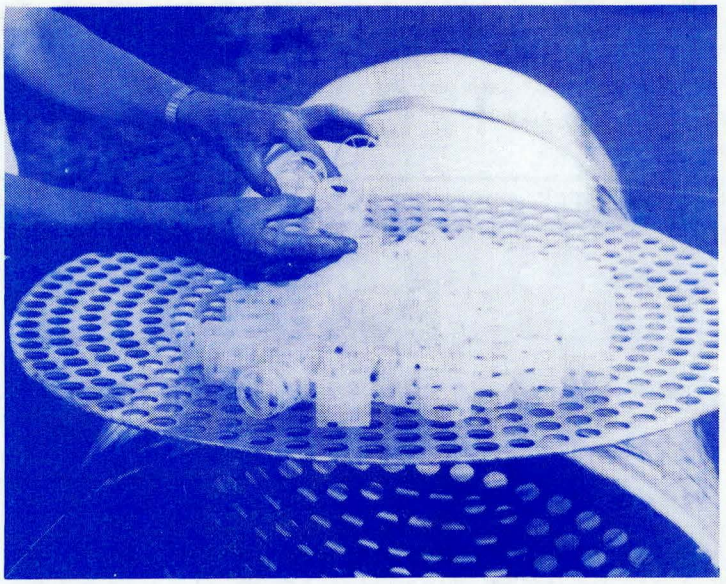


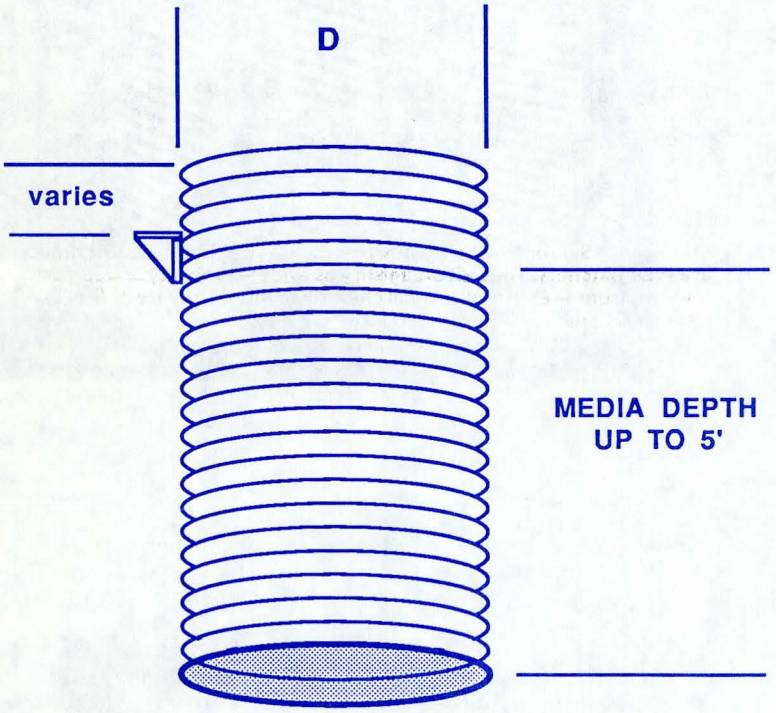
This photograph shows the installations of 24' diameter columns suspended from brackets connected to overhead beams with stainless steel threaded rods.

Support systems can be adapted to individual site requirements.



Columns can be furnished with individual options such as removable underdrains, side access plates, and custom supports. Full enclosure bonnets for gas drawoff are also available.





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