



NEWSLETTER  
OF THE EXOTIC FISH SECTION  
AMERICAN FISHERIES SOCIETY

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William L. Shelton, Editor

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From the President

It was good to see the many members of the Exotic Fish Section who attended the meeting of the American Fisheries Society in Albuquerque this past September. Our symposium on the distribution, biology and management of exotic fishes appears to have been well received from the feedback I have received. It was unfortunate that a session on the grass carp - bighead carp hybrid was scheduled opposite our afternoon session; however, by the time this overlap was discovered, it was too late to re-arrange the meeting program.

This promises to be an exciting and active year for this Section. The minutes of our 1981 business meeting, included in this Newsletter, will give you an indication of our planned activities for 1981-82. Also, Jay Stauffer and I have been hard at work on the manuscripts received from our symposium participants. If all goes as planned, the book resulting from that symposium should be published in 1982.

I am hoping that we can obtain a greater involvement of persons from the aquarium fish industry in the activities of this Section this year. Much is to be gained in exchanging ideas on matters of mutual concern and interest. Toward that goal, we are inviting persons from that industry to organize a session on some aspect of its activities for the 1982 AFS meeting to be held this coming September at Hilton Head Island, South Carolina.

I had planned to include our list of non-established exotic fishes known from U.S. (continental) waters in this issue of the Newsletter. At present, however, some new additions for the list have just arrived and, in hopes of being as complete as possible, I will defer including it until the next issue.

As of our last count of Section members, we were just short of that magic 200 that would give us voting privileges on the AFS Executive Committee. So please recruit some new members as soon as possible. A membership application form is included at the end of this Newsletter.

Finally, I wish all of you a happy, healthy and productive 1982.

Walter R. Courtenay, Jr.



### From the Editor

Our newsletter should reflect items of interest to the membership, but if we aren't aware, we can't pass them on. In this issue, we have included announcements of meetings, recent literature, and information tidbits with an aquacultural slant. If your pipeline flows from other sources and you want to share, do so!

I feel that knowledge of other's interest and expertise would foster direct communication. I have found the membership directory for the Fish Culture Section quite useful. To develop an EFS directory, we have most of the basic data on our membership printout but more specific information could be obtained with a brief questionnaire. If you have strong feelings pro or con, let us know.

### About the Logo

The logo of this newsletter was drawn by Carla Zedialis, a scientific illustrator of the Fisheries Research Laboratory, Southern Illinois University.

### Minutes of the Annual Business Meeting of the Exotic Fish Section

Dr. James McCann, President of the Exotic Fish Section opened the Annual Business Meeting of the Section at 1:15 p.m. on September 17, 1981 in the Ambassador Room of the Classic Hotel, Albuquerque, New Mexico. Seventeen members of the Section were present.

President McCann thanked his fellow officers (Courtenay and Kohler) for helping to make the past year a success for the Section. He also thanked members of the various committees: Symposium Committee, Walt Courtenay and Jay Stauffer; Protocol Committee, Chris Kohler and Jon Stanley; and Grass Carp Committee, Jerry Shireman. Special thanks also went to Bob Goldstein for serving as liason with the Tropical Fish Industry.

Secretary/Treasurer Kohler reported that the minutes for the last meeting had been published in our first newsletter; the motion to approve the minutes was seconded and passed. A fiscal report was also given and Dr. Kohler recommended that an "auditing committee" be established for reviewing future fiscal reports. The motion was seconded and passed.

Committee Reports: Drs. Courtenay and Stauffer reported on the Symposium program and noted that they have been negotiating for either AFS or a private publisher to publish the Symposium Proceedings. Profits from the book will return to AFS and the Section. Dr. Kohler reported that he and Dr. Stanley had prepared a preliminary protocol for exotic fish introductions and that it would be presented at the Symposium. Dr. Goldstein announced that he had been in contact with the pet industry and had informed them that we hope to establish worthwhile relationships.

Old Business: President McCann noted that he is very concerned about the negative Section image that has resulted in some sectors. He reiterated that the mission of the Section is to promote the wise-use of exotic fishes while protecting the ecological integrity of our waterways. Dr. McCann noted that the Section membership is well-rounded and includes fisheries ecologists, aquaculturists and pet businessmen. He noted that significant accomplishments had accrued in our first year, including 1) building our membership to over 175, 2) producing a fine newsletter, 3) interactions



with other Sections, 4) sponsorship of a major Symposium of international dimensions, and 5) development of a preliminary protocol to evaluate exotic fish introductions.

New Business: The first order of new business was a report by Dr. Shireman, Chairman of the Ad Hoc Nominating Committee. The Section election results were reported as follows:

President - Walter <sup>R.</sup>J. Courtenay

President-Elect - William L. Shelton

Secretary-Treasurer - Christopher C. Kohler

The new officers were then inducted into office.

As his first function, President Courtenay presented Jim McCann with a past-President's plaque and thanked him for his leadership during the Section's first year. Dr. Courtenay announced the planning of a session on the Aquarium Fish Industry for next year's AFS national meeting at Hilton Head Island, South Carolina. He then recognized then AFS President-Elect John Magnuson, then-First Vice President Big Bill Lewis and then-Second Vice President Janice Hughes as present. It is noteworthy that each is a member of the Section.

President Courtenay announced the following committees:

Definitions: Paul L. Shafland (chairman), James D. Williams and William M. Lewis.

Membership: George H. Burgess and additional members to be named at a later date.

Liason Committee with the Tropical Fish Industry: Robert J. Goldstein (chairman) and Allan L. Levy.

Exotic Fish Protocol: C.C. Kohler (chairman), Jon G. Stanley and James A. McCann.

Liason Committee on Tilapia with Fish Culture Section: William L. Shelton (chairman) and additional members to be named at a later date.

Grass Carp/Bighead Carp Hybrid: Jerome V. Shireman (chairman) and additional members to be named at a later date.

Open Discussion: Dr. Courtenay recommended that the Section should expand its mission beyond "foreign" (= presently our definition of exotic) to transplanted U.S. fishes. There was general agreement among the present membership that this should be done. Taking such an approach should increase our membership along with our scope.

Dr. Goldstein recommended that copies of our newsletters should be sent to the Pet Industry and Special Interests. Jim McCann made a motion that we not charge for the newsletter but that rather we develop an agreement for "exchange of information." The motion was seconded and passed. Bob Goldstein will follow-up on this matter.

Dr. H. Francis Henderson, Chief of Inland Water Resources and Aquaculture Service of the Food and Agriculture Organization of the United Nations was a visitor to our Section meeting and he expressed FAO's continued interest in our Section and activities. He apologized for Dr. Robin Welcomme not being able to attend our Symposium.



He mentioned that the European Inland Fisheries Advisory Commission (EIFAC) had proposed a Code of Practice for the introduction of fishes in Europe and that they would very much like to collaborate with our efforts in that regard.

The Second Annual Business Meeting of the Exotic Fish Section of the American Fisheries Society was adjourned at 1:46 p.m. on September 17, 1981.

Signed by Christopher C. Kohler  
Secretary/Kohler

#### EFS Membership

As of October 1981, three AFS sections had less than 200 members which is the minimum to insure a vote on the Executive Committee, AFS. These sections are ours EFS, the Fisheries Administrators, and the newly organized Bio-engineering Section. The Exotic Fish Section is only in its second year and the 1982 membership may reflect some new recruits.

#### Exotic Fish Symposium

The symposium on exotic fishes that was held at the AFS meeting in Albuquerque was a resounding success and credit is due those who labored to organize this international session. Those unable to attend will be able to benefit from the shared information as the proceedings will be published. Most of the manuscripts have been received by editors Walt Courtenay and Jay Stauffer and are presently being processed for author review which will be followed by a peer review. The final product is programmed for completion during 1982; we will update the status in subsequent newsletters.

#### Grass Carp Hybrid

A session that overlapped the Exotic Fish Symposium at Albuquerque was one that presented results of various investigations on the grass carp (female) X bighead carp (male) hybrid. The hybrid has received considerable attention in the U.S. subsequent to the reports by Hungarian workers. At the risk of misinterpreting the results of the numerous papers presented at the AFS session, we offer the following impressions. The hybrid may be characterized as being morphologically distinct from the parents, triploid in chromosome composition, and presumed to be sterile. In various tests, the hybrid consumed macrophytes similar to the grass carp but with some difference in preference and amount. If these impressions are erroneous, we welcome correction. A list of the papers presented in this AFS module and the symposium on exotic fishes was published in Fisheries 6:31-37. For more information on the hybrid, see some of the references listed in the "recent literature section" of this newsletter.

#### Grass Carp Stocking

At the Exotic Fish Section meeting in Albuquerque, Dr. Rich Noble reported on the planned stocking of grass carp into Lake Conroe, Texas. In a recent telephone conversation,



he updated that report. Lake Conroe is a 20,000 acre water supply reservoir on the San Jacinto River near Houston. About 8,500 acres of the reservoir are infested with aquatic weeds, primarily hydrilla and Eurasian milfoil. Stocking was initiated in September 1981 (170,000) and is to be completed by June 1982. Stocking rate will be about 30 fish per acre of vegetation or a total of 270,000. Legislation calls for a 5-year post-stocking evaluation which will include vegetation control and fish populations. Personnel at Texas A and M will conduct the study. In years to come, if we consult our Thesaurus for "controversy", we may find "grass carp" as a listed synonym; here's hoping this study will resolve some of the questions on impact of such a stocking.

#### EIFAC Symposium

Both your Presidnet, Walt Courtenay, and your Secretary/Treasurer, Chris Kohler, have been invited by the European Inland Fisheries Advisory Commission to participate as main contributors to the EIFAC Symposium on Stock Enhancement in the Mangement of Freshwater Fisheries, to be held in Budapest, Hungary on 29 May - 5 June, 1982. The Symposium is intended to examine and evaluate current practices for the manipulation of fish stocks in inland waters by introduction or stocking with a view to recommending to member countries of EIFAC ways in which the management of inland water fisheries by these methods may be improved.

#### Program Highlights

To enhance our awareness of activities on exotic fishes, we solicit contributions that describe your programs, including facilities, research, commercial operations, etc. Don't be reluctant to share. In this spirit, we have twisted an arm here and there and offer in this issue highlights from two programs dealing with exotic fishes.

##### 1. Florida's Non-native Fish Research Laboratory

In 1973, the Florida Game and Fresh Water Fish Commission established the Non-Native Fish Research Laboratory at Boca Raton in cooperation with Florida Atlantic University. The objectives of this Laboratory, the first of its kind, are to (i) document the occurrence, distribution and biology of established non-native fishes; (ii) to utilize these data for developing new management practices which minimize any deleterious effects and/or maximize any beneficial effects these fishes may perpetrate.

Laboratory facilities include 17 ponds and several buildings located on 10 ha of land. The main building includes a general-purpose research area, two labs, a field team work-up room, fish collection room, shop, library-conference room, offices and storage areas. The Laboratory is well equipped with numerous aquaria (up to 3,500ℓ), a 4,000ℓ temperature control system, basic laboratory equipment, computer terminal and field equipment including modern electrofishing gear, boats, various types of nets and other sampling gear.

Current research activities include a quantitative fish population survey of south Florida canals, stomach analyses of established non-native fishes, an evaluation of blue tilapia in a central Florida lake and a comprehensive study of the fishes of Black Creek, which has seven established populations of non-native fishes. Other research



activities have included identifying lower lethal temperatures for 15 established non-native fishes, elimination of several reproducing populations of non-native species (e.g. Tilapia zillii, Cichlasoma salvini, C. trimaculatum) found in isolated bodies of water, karyotyping and evaluating use of grass x bighead hybrids, plus numerous mini-studies on various aspects of non-native fish biology. The laboratory is supported entirely by Commission and has cooperator access to the facilities of Florida Atlantic University.

Paul Shafland  
Director

## 2. Department of Fisheries and Allied Aquacultures, Auburn University

The formal program in fisheries at Auburn University was started in 1933 by Dr. H.S. Swingle. Since then, pond and laboratory research facilities have been expanded and modernized. Courses in fisheries and aquacultures were established in 1946. The first graduate degree was awarded in 1948. On 1 July 1970, the fisheries and aquaculture program, which had been a part of the Department of Zoology-Entomology, was accorded full departmental status as the Department of Fisheries and Allied Aquacultures. At the same time, the International Center for Aquaculture was established as an associated entity. Both the Department and the Center are part of the University's School of Agriculture and Agricultural Experiment Station.

A new fisheries building on campus, Swingle Hall, was occupied in 1972 by the Department of Fisheries and Allied Aquacultures. This three-floor building has approximately 2,300 square meters of floor space. It houses offices for staff and graduate students, a lecture hall, two teaching labs, various research labs, and administrative offices.

Field facilities of the Fisheries Research Unit of the Agricultural Experiment Station was located on a 910-ha tract north of campus. This research facility has been constructed over the past 39 years and now consists of 258 earthen ponds with a total surface area of 90 ha, plus 96 concrete ponds, and approximately 250 plastic pools. There are several wet labs on the field station which include those for nutrition, fish processing, reproduction, and live fish sorting.

The staff presently consists of 44 professionals, 30 of whom hold doctorates; 6 are currently on long-term overseas assignments. Well over three-fourths of the staff have experience in fisheries and aquaculture work overseas.

Training consists of the regular graduate degree program which includes a recently instituted non-thesis option. Current enrollment at the graduate level is about 120; 40-50% are international students. Non-degree training includes an annual 16-week Aquaculture Training Program, a Continuing Education Program, and numerous short-courses.

Major research emphasis is in aquaculture and fisheries. The interest in warmwater aquaculture has resulted in a long-term involvement with exotic species. Exotic fishes have been a part of the research efforts since about 1954. The species included have been Ctenopharyngodon idella, Hypophthalmichthys molitrix, Aristichthys nobilis, Tilapia mossambica, T. aurea, T. nilotica, T. hornorum, T. rendalli, and Cichla ocellaris.



All but the latter two species are currently being used in a variety of aquacultural investigations. The Chinese carps are used in polyculture experiments with channel catfish; reproductive work includes gynogenesis, sex-reversal, and hybridization. Various tilapias are also used in polyculture as well as in monoculture production studies using formulated diets and manuring; genetics and selection and reproductive control through sex reversal or hybridization are components of tilapia investigations.

### Upcoming Meetings

A Joint Fish Culture/Fish Health Section Workshop, AFS; Boulder Colorado; 8-12 February 1982; an up-to-date review of quality improvement in finfish aquaculture.

Correspondence: John Schahcte, Fish Disease Control Unit, 8314 Fish Hatchery Rd., Rome, N.Y. 13440.

International Symposium on Genetics in Aquaculture; Galway, Ireland; 29 March-3 April 1982. Deadline for abstracts has past; registration deadline, 19 February 1982.

Correspondence: Genetics in Aquaculture Symposium Office, University College, Galway, Ireland.

European Inland Fisheries Advisory Commission Symposium on Stock Enhancement in the Management of Freshwater Fisheries. Budapest, Hungary; 29 May - 5 June, 1982.

Correspondence: Robin Welcomme, FAO, Rome.

International Symposium on Reproductive Physiology of Fish; Wageningen, The Netherlands; 2-6 August 1982; Registration deadline, 1 May 1982. Correspondence: International Agricultural Centre, P.O.B. 88, 6700 AB Wageningen, The Netherlands.

Second International Symposium on Herbivorous Fish (in conjunction with International Symposium on Aquatic Weeds); Novi Sad, Yugoslavia; 20-25 September 1982. Correspondence: T.O. Robson, Agricultural Research Council, Weed Research Organization, Yarnton, Oxford OX5 1PF, England.

International Symposium on Tilapia in Aquaculture; Tiberias, Israel; 8-13 May 1983;

Correspondence: The Secretariat International Symposium on Tilapia in Aquaculture, P.O. B. 3054, Tel Aviv 6130, Israel.

Do you have information on meetings of interest to you? Send them for inclusion in the next newsletter.

### Recent Literature

Beck, M.L., C.J. Biggers, and H.K. Dupree. 1980. Karyological analysis of Ctenopharyngodon idella, Aristichthys nobilis, and their F<sub>1</sub> hybrid. Transactions American Fisheries Society 109:433-438.

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Pullin, R.S.V. and R.H. Lowe-McConnell, editors. In Press. The biology and culture of tilapias. Proceedings of the International Conference held in Bellagio, Italy, 2-5 September 1980. Sponsored by ICLARM, Manila, Philippines. Anticipated availability late 1981, price not quoted.

Welcomme, R.L. 1981. Register of international transfers of inland fish species.  
FAO Fisheries Technical Paper No. 213. Rome, Italy.

Wohlfarth, G.W., and G. Hulata. 1981. Applied genetics of tilapias. ICLARM Studies  
and Reviews 6. Available from ICLARM, MCC P.O. Box 1501, Makati, Metro Manila,  
Philippines. Price: \$6.50.