



NEWSLETTER

of the Introduced Fish Section
American Fisheries Society

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Don Baltz, Editor

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PRESIDENT'S CORNER

HOOORAY for four courageous Section members who responded to the call for nominees for IFS officers and editor in the last Newsletter. We have a full and excellent slate of candidates. One of the names you'll see on the enclosed ballot is a familiar one who just couldn't get enough and is diving in for another go-round. Two are new faces to the IFS helm. All deserve our full support for their willingness to step forward and take the plunge into the leadership of this diverse Section. So, now it's time the rest of us to participate and send in those ballots. I'll hand over the gavel in Tampa!

I will save my goodbyes for the newsletter edition that follows the passing of the baton in Tampa. In the meantime, I've been on the move again (literally). My wife and I both recently accepted transfer offers from the Regional Office of the U.S. Fish and Wildlife Service in Portland, Oregon and have made the move. No longer with the Service's Congressional Liaison office, I feel a bit "off-the-pulse" of Capitol Hill -- but I think I can adjust! Something tells me I'm not going to miss working with the likes of recently introduced Congressional "alien species" like Dick Pombo, Helen Chenoweth and their militant sidekicks. My "apologies" to those who support Chenoweth's view that Snake River sockeye salmon are not endangered, because she knows she can get a can of red salmon at the market anytime she wants; and those who believe Pombo is there to represent the honest dirt farmer, while he subdivides and sells his own dirt -- but I digress. There is, believe it or not, plenty of interesting news from outside the beltway. Read, absorb, and respond to the news in the following sections and I'll see you all in Tampa!

FROM THE EDITOR

Thanks to those of you who have sent in materials for the newsletter. I am always looking for contributions, so keep the newsletter in mind when you see an item that might be of interest to IFS. You can submit items by FAX, e-mail, or snail-mail. See addresses at end of newsletter. I also welcome your comments on the content and coverage newsletter, tips on information sources, abstracts of your papers *in press*, and items of interest.

IFS MEETING IN TAMPA '95

The Introduced Fish Section meeting in Tampa is set for 4:30-5:30 PM, Sunday, August 27th in the Hyatt Hotel following the Society EXCOM meeting (which runs through 3:30 PM). Please plan to attend if at all possible. Unfortunately, though there was strong interest by the Conservation and Science Division of the American Zoo and Aquarium Association, the special session on the use of nonindigenous species in the aquarium industry did not come together. Perhaps we can work this one out for a future meeting. The IFS will also be participating in the poster session with a showing of the "award winning video" recently completed by the Agricultural Extension Service (see following section). The poster session this year will focus on the contributed posters and the activities of the Sections. It should be an excellent recruiting opportunity!

STRANGERS IN OUR WATERWAYS

Strangers in Our Waterways: This is the title for the video, mentioned in several of the past newsletters, that was under development by the Agricultural Extension Service at Oregon State University. It is now complete and has already won accolades. It won the Gold Medal (1st Place!) at the 1995 Agriculture Communication Educators Awards. Congratulations and thank you to all of those in IFS (and there were many) who volunteered your time and talents to the making of the video. Come see the video at the Poster Session. It may also be shown at our Section meeting if there is sufficient time after Section business is completed.

Strangers in Our Waterways, VTP 023, is available by mail for \$30 from Publications Orders, Agricultural Communications, OSU, Administrative Services A422, Corvallis, OR 97331-2119. Make checks or money orders payable to OSU Extension Service.

CORRESPONDENCE

Exotic Fishes on the Information Highway Correspondent: Editor

Several sources of information on the internet relating to exotic/introduced fishes have come to my attention. The Fish-Ecology list <FISH-ECOLOGY@SEARN.SUNET.SIE> is a forum for general discussions on the ecology of fishes and includes several hundred scientists and students world wide. Gene Buck also posts useful summaries of fisheries related information on the Fish-Ecology net (see Fish News below). The US Fish and Wildlife Service maintains a home page on the World Wide Web at "http://www.fws.gov". The US House of Representatives has a web site at "http://www.pls.com:8001/his/cfr.html" that provides access to federal regulations via the Internet Law Library.

Marine Fish Introductions In Southeastern Florida

..... Correspondent: Walter R. Courtenay, Jr.
While many persons understandably are concerned about introductions made with discharge of foreign ballast water, another introduction vector -- aquarists -- is at work. One victim of Hurricane Andrew in 1992 was a large marine aquarium, reportedly on a waterfront porch above a seawall at the edge of Biscayne Bay, just south of Miami, Dade County. Its former residents -- about six lionfish (*Pterois volitans*) -- were observed nearby and alive in the

Bay several days later. Several individuals of lionfish have also been observed by divers off Palm Beach and Boca Raton, and another was caught by an angler from Lake Worth Pier, Palm Beach County (R. McAllister, pers. com).

Several years ago, a specimen of "panther grouper" or barramundi cod (*Cromileptes altivelis*) was caught in Tampa Bay, Hillsborough/Pinellas counties (M. Leiby, pers. comm.), and individuals of this Indo-Pacific serranid have been observed in nearshore waters off Boca Raton. Other marine exotics seen and photographed recently off southeastern Florida beaches include a western Pacific angelfish (yellowmask angelfish, *Pomacanthus xanthurus*) and balistid (blackpatch triggerfish, *Rhinecanthus verrucosus*), and an Arabian angelfish (*Pomacanthus asfur*) from the Red Sea and Gulf of Aman. There have been numerous reports for many years of royal gramma (*Gramma loreto*) having been introduced and seen outside its native range in the same waters (S. Cummings, C. Lavin, K. Norris, and C.R. Robins, pers. com.).

To date, all marine exotic fishes caught or observed in Florida waters have been adults, some of them quite valuable in the marine aquarium trade. The Arabian angelfish photographed off Boca Raton, for example, would cost well over \$200 if purchased retail (K. Norris, pers. comm.). These introductions indicate that aquarists are releasing unwanted pet fishes, and others may be "stocking" some fishes in hope of establishing the species for future commercial harvest. Although none of these fishes has yet been shown to be established, it is probably only a matter of time before one or more species become successful colonizers.

Systematics and Introduced Fishes Correspondent: Walter R. Courtenay, Jr.

Collette and Vecchione (1995) stated "Trained systematists should examine samples of introduced organisms to ensure their correct identification. Collectors and importers can easily be mistaken about taxonomy." They added, "Fishery scientists must collect specimens of introduced species and deposit them in archival museums for correct identification." Bruce and Mike were right on target as other recent publications prove.

Based on taxonomic revisions of sailfin catfishes by Weber (1991, 1992), Page (1994) has shown that sailfin catfishes established in Florida and earlier identified by J.N. Taylor (see Courtenay et al. 1984, 1986; 1991) and Ludlow and Walsh (1991) as belonging to *Pterygoplichthys multiradiatus*, often treated along with other loricatorid catfishes in the aquarium fish trade as "plecos", represent two species of the genus *Liposarcus*. In addition to several specimens of as-yet-identified species of *Hyposomus* collected from the same drainages (one considered as established near Tampa), two species of *Liposarcus* (*L. multiradiatus* and *L. disjunctivus*) are known to have established populations in Florida. Page (1994) has tentatively assigned common names to these exotics (subject to review by the AFS/ASIH Names of Fishes Committee). Sailfin catfish is the presently accepted common name for *L. multiradiatus*, established from Dade into central palm Beach counties of southeastern Florida, and vermiculated sailfin catfish has been proposed for *L. disjunctivus*, with established populations in Hillsborough County. Specimens examined by Page (1994) are deposited in the Florida Museum of Natural History in Gainesville.

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Exotic Wakasagi in a California Estuary..... Correspondent: Peter B. Moyle

I have just finished an electrophoretic study (with Peter Trenham and Bradley Shaffer) that shows conclusively that wakasagi (*Hypomesus nipponensis*) have invaded the Sacramento-San Joaquin estuary and have hybridized with delta smelt (*H. transpacificus*). Hybrids are rare and there is no evidence of back crossing, so I am hoping they are sterile. Wakasagi were introduced into California from Japan in the 1950s to provide forage for trout in reservoirs. They eventually made their way downstream into Folsom Reservoir on the American River, where they became abundant. From there it is only a short distance to the estuary. This new invasion is cause for concern because not only is the delta smelt listed as a threatened species but its numbers seem to be record lows, despite a wet year. The massive state and federal pumps that divert water from the Delta have "take" limits imposed on them by the Endangered Species Act and having wakasagi present as a "look alike" species complicates matters. The two species are extremely difficult to tell apart when less than 30 mm long and not all that easy when they are larger.

This wet year otherwise seems to have been good for the native fishes but may have dropped some new invaders into the Sacramento and San Joaquin Rivers. Northern Pike and white bass were both established in reservoirs by illegal introduction of anglers. The reservoirs in which they were located connect to the main river systems during periods of high flow--such as this year. We can only hope that by some miracle neither species has made it out in enough numbers to establish populations. The last thing we need here is a couple of more top carnivores trying to devour native salmon and other fishes into extinction!

Performance Standards for Safely Conducting Research with Genetically Modified Fish and Shellfish: FINAL DRAFT Correspondent: Anne Kopuscinski

Growing consumer demand for affordable, high quality seafood and the need to protect fisheries resources from overharvesting are two key reasons for the interest in aquaculture research. Today, state-of-the-art research involving fish and shellfish often involves the use of biotechnology. To help aquatic researchers consider the safety/risks of their projects and better manage their research to minimize adverse ecological effects, USDA's Agricultural Biotechnology Research Advisory Committee (ABRAC) has prepared voluntary performance standards entitled "Performance Standards for Safely Conducting Research with Genetically Modified Fish and Shellfish". According to the ABRAC, the Standards "should encourage the conduct of safe research to address important information gaps about environmental effects of certain genetically modified fish and shellfish and facilitate safe development of these modified organisms.

The Standards consist of three interrelated documents: the flowcharts which provide the decision making pathway for assessing if there are specific risks and managing any identified risks of research projects; the supporting text, which gives the scientific background for the questions and alternative decisions in the flowcharts; and the worksheet which is completed by the researcher and describes the rationale for the project's risk management measures. A computerized, interactive version of all three components will be forthcoming.

These performance standards were developed by the USDA Agricultural Biotechnology Research Advisory Committee's (ABRAC) Working Group on Aquatic Biotechnology and Environmental Safety chaired by Dr. Anne Kopuscinski, University of Minnesota, in conjunction with many individuals from the aquatic research community, environmental interest groups, the aquaculture industry, and State and Federal fisheries management agencies.

The Standards are in a "final draft" stage of development and will be the main topic of discussion at the June 26 meeting of ABRAC in Washington, D.C. The public is invited to

attend and participate. Anyone wishing to receive a free copy of the Standards and flowcharts may send a request by FAX to 202-720-5336. For more details, please call Alvin Young, OAB Director, at 202-720-5853.

Nomination deadline (July 1) for the 1995 award for Mentoring for Professional Diversity in Fisheries..... Correspondent: MaryLouise Keefe

The purpose of this new award is to recognize an AFS member who has contributed to increasing the diversity of our profession by assisting in the professional development of fisheries students or new fisheries professionals from underrepresented groups.

The Equal Opportunities Section of the American Fisheries Society is sponsoring an award for Mentoring for Professional Diversity in Fisheries. The purpose of the award is to recognize a member of the American Fisheries Society who has contributed to increasing the diversity of our profession by assisting the professional development of fisheries students or new fisheries professionals from underrepresented groups, including women, ethnic groups, and people with disabilities.

Nominations are currently being solicited by the AFS Mentor Award Committee. Nominees must be current members of AFS. Nominators must provide:

- 1) a letter describing how the nominee encompasses the intent of the award,
- 2) a list of learning partners or mentoring activities,
- 3) a total of six supporting letters of reference three supporting references from peers and three supporting references from learning partners, and
- 4) a biographical sketch summarizing all professional contributions and activities of the nominee.

Selection will be based on greatest demonstrated contribution towards mentoring fisheries students or young fisheries professionals from underrepresented groups. The committee believes a mentor should emulate the following.

A mentor guides and empowers a learning partner. A mentor helps to shape and promote a learning partner's career, and is in position to intervene on behalf of the learning partner.

A mentor should provide help with networking and goal-setting, encouragement as well as a challenge, emotional support as well as intellectual support, and acknowledgment of accomplishments. A mentor is genuinely concerned with the success of the whole person.

Please submit nominations to MaryLouise Keefe, Oregon Dept. of Fish and Wildlife, 211 Inlow Hall, Eastern Oregon State College, LaGrande, OR 97850. Phone (503) 962-3777 or FAX (503) 962-3849.

Wanted: Correspondence Courses in Fisheries and Related Fields

..... Correspondent: Bob Carline
The Society's Continuing Education Committee has been exploring different ways in which we can provide members with training opportunities. To date, nearly all Society-sponsored courses are given at meetings of the Parent Society or subunits. While these formats can be effective, they may not be readily accessible to all members.

For certain subjects, correspondence courses may provide training opportunities that would otherwise not be available. Many universities offer a variety of correspondence courses, but fisheries and aquatic ecology offerings are practically nonexistent.

The Continuing Education Committee is seeking the help of instructors who are teaching or have taught fisheries-related courses, or in-service courses that have potential as correspondence courses. The Committee would appreciate hearing from you. We recognize that course revisions may require considerable effort and costs, for which funds may be available. To further explore potential courses, contact: Bob Carline, Merkle Laboratory, University Park, PA 16802

Telephone: (814) 865-4511; FAX: (814) 863-4710; E-Mail: l7u6@psuvm.psu.edu

Lake Trout..... Correspondent: Editor
E. J. Crossman has a paper, entitled 'Introduction of the lake trout (*Salvelinus namaycush*) in areas outside its native distribution: a review' which will appear in the Journal of Great Lakes

Research dedicated to a symposium on 'Rehabilitation of the lake trout in the Great Lakes: a critical assessment.' The date of publication is unknown. The article provides information on the introduction of the lake trout in waters (worldwide) outside its natural range by summarizing results from a survey of existing literature and the very extensive responses to a questionnaire sent to resource management agencies.

Iberian Cyprinodontids Need Help..... Correspondent: Dennis Lassuy

Dr. Carlos Delgado, a recent new member of AFS, has asked for the help of the IFS in his work on the Iberian Peninsula. Dr. Delgado reports that the small cyprinodontid *Aphanius iberus* has almost disappeared from the Iberian Peninsula, to which it is endemic. It has apparently lost much of its habitat to human development and may face problems with two introduced species, *Gambusia affinis* and *Fundulus heteroclitus*. He would appreciate any information that Section members could provide on "management programs to recover endangered fish species" that face similar situations. If you have any information on what has/hasn't worked, please share it with Dr. Carlos Delgado, Seccion de Zoologia, Departamento de Biologia Animal, Facultad de Ciencias, Avda. San Alberto Magno s/n, 14004 Cordoba, Spain.

Great Lakes Panel on ANS..... Correspondent: Dennis Lassuy

This panel on Aquatic Nuisance Species was convened by the Great Lakes Commission and puts out an ANS Update quarterly. To receive the Update or for other information, contact: Kathie Glassner-Shwyder, Great Lakes Commission, The Argus II Bldg., 400 Fourth Street, Ann Arbor, MI 48103-4816; phone = 313-665-9135; fax = 313-665-4370; e-mail = Shwyder@glc.org. A recent issue of the Update includes a discussion of plans for a workshop with the Michigan DNR to provide guidance for Great Lakes states in developing ANS management plans (to get federal cost-share support under Section 1204 of the Nonindigenous Aquatic Nuisance Prevention and Control Act). New York, the only state with an approved plan thus far, will receive \$68,000 in federal cost share support from the U.S. Fish and Wildlife Service in FY 1995. The Chesapeake Bay Program has completed a similar exercise (see **Have You Seen...?** below).

Dangerous Rhetoric..... Correspondent: Dennis Lassuy

Water Farming Journal reports that fish farmer Gary White was sentenced in a Texas court to 180 days and a \$1500 fine for illegal possession of grass carp. The Journal notes that the president of the Texas Family Fish Farmers Association apparently defended White by claiming that in "Alabama, where grass carp are accepted, White would be praised as a successful businessman" The journal also reports that picketers marched outside the court accusing the Texas Parks and Wildlife Department of "gestapo" tactics. Let's hope that such dangerous rhetoric remains limited to the idle talk of picketers and does not lead to violence over otherwise legitimate differences in state or federal policies.

Illegal Fish Stocking is Criminal..... Correspondent: Dennis Lassuy

In a recent edition of their newsletter, Pronghorn, the Wyoming Wildlife Federation calls for public recognition that "illegal introduction of fish or any wildlife is a serious crime." The article contrasted the "front page news" coverage of the poaching of a single bull elk in Yellowstone National Park (\$10,000 reward offered for information leading to conviction) with the "filler on the back page" on the illegal stocking of yellow perch in a Wyoming lake (for which a \$400 reward was offered). The article suggested that the introduction of the perch "has a far greater biological impact" than the loss of a single elk, tragic as that loss may be. While not at all minimizing the importance of stopping poachers, the article asks "why the huge disparity in reward money and in apparent public interest?" Clearly, we have a long ways to go in helping the public understand the implications of such actions if we are to maintain any semblance of control over our own fisheries management programs.

Fish News Correspondent: Gene Buck

[Gene Buck is a Senior Analyst for the Congressional Research Service and publishes weekly summaries of fish related issues for Congress. His e-mail address is gbuck@crs.loc.gov. This is a selected subset of news items extracted from <FISH-ECOLOGY@SEARN.SUNSET.SE> with Gene Buck's permission. Gene is always looking for new fisheries issues to communicate to Members of Congress and their staff. *Editor*]

Montana Whirling Disease Regulations. On Apr. 7, 1995, the State of Montana imposed a statewide emergency regulation, effective through February 1996, prohibiting the use of sculpin as baitfish in Montana waters in an effort to restrict the spread of whirling disease. Sculpin are believed to be possible carriers of this disease which has been devastating to some rainbow trout populations. Tests are being conducted to confirm whether sculpin can carry whirling disease [Assoc. Press].

Whirling Disease. On May 18, 1995, Montana Governor Racicot, by executive order, appointed a task force to examine and identify issues related to whirling disease and Montana trout, and prepare an action plan addressing research needs, fisheries management, economic and social impacts, and policy issues; the task force's first meeting is scheduled for May 23. [Assoc. Press].

Zebra Mussel Suit. On Apr. 3, 1995, the Sand Lake Property Owners Association (MI) filed suit in Lenawee Circuit Court to close a public boat launch access site on Sand Lake to prevent the introduction of zebra mussels. [Assoc. Press].

Lower Zebra Mussel Damage Estimate. On May 8, 1995, an Ohio State university scientist reported that his survey of water users in the Great Lakes area led him to conclude that total damage from zebra mussels may be closer to \$1 billion rather than the \$3.1 billion estimated by the Office of Technology Assessment in 1993. [Columbus Dispatch via Associated Press].

International Aquaculture Report. On May 14, 1995, the World Bank's Consultative Group on International Agricultural Research (CGIAR) released a report stating that fish farming and sea ranching may be the new frontier in agriculture. The report suggested that aquaculture could meet as much as 40% of the world's demand for fish in 15 years. [Reuters, Greenwire].

NMFS Begins Recovery Plan Hearings. On May 15, 1995, NMFS held the first of eight public hearings on its proposed recovery plan for threatened and endangered Snake River salmon; hearings will be held in various locations in ID, OR, and WA States through June 6. [Assoc. Press].

Yellowstone Lake Trout Control. In late May and early June 1995, U. S. Fish and Wildlife Service personnel will begin using 300-foot gill nets in an attempt to learn more about abundance and movements of lake trout introduced into Yellowstone Lake. Gill nets may eventually be used in an attempt to control lake trout numbers to protect native cutthroat trout. [Assoc. Press].

Eight-minute Herring Opening. On Mar. 5, 1995, British Columbia managers gave fishermen an 8-minute open season to catch 770 tons remaining unharvested in the Strait of Georgia's roe-herring fishery. In this time, harvesters exceeded the quota by an estimated 50 to 100 tons [Assoc. Press].

Northern Rockies Fish Study. In late February 1995, the Pacific Rivers Council released a study claiming that virtually all native fish species in the northern Rockies are in serious trouble. Declines in 16 fish species are related to damage to watersheds and introductions of non-native species. To address this concern, the Pacific Rivers Council suggests an aquatic conservation strategy on public lands. [Missoulian (Missoula, MT) via Greenwire].

Channel Catfish in Oregon's Rogue River Correspondent: Hiram W. Li

A large channel catfish, about 18 pounds, was caught in the Rogue River. It's terrifying because channel catfish in the Snake River are stuffed with salmon and steelhead smolts during peak runs. Whereas, it is hard to tell whether or not these are the deaf, dumb, crippled, and blind smolt. I do think that channel catfish can be piscivorous, and they are bad news when salmon runs are down. This is probably the result of a bait-bucket introduction. How many mating pairs are in the Rogue River?

Aquatic Conservation Network Workshop on Madagascar Cichlids

..... Correspondent: Editor
The Aquatic Conservation Network (ACN) will lead a workshop titled "Aquarists and the Conservation of Fish Species: With Special Reference to the Endemic Cichlids of Madagascar". It will take place during the American Cichlid Association Convention, July 20-23, 1995 at Le Baron Hotel, San Jose, California, U.S.A. The workshop will be held on the evening of Thursday July 20. ACN Contact: Rob Huntley, General Manager, Aquatic Conservation Network, 540 Roosevelt Ave., Ottawa, Ontario, Canada K2A 1Z8 Tel: (613) 729-4670; Fax: (613) 729-5613; Internet: ag508@freenet.carleton.ca; CompuServe: 71022, 3537.

Fishes and Exotic Willows Correspondent: Keith Walker

[This item was picked up from the Fish-Ecology Net, and is reproduced with the author's permission-Ed]

I am one of a group of ecologists concerned, among other things, with the littoral ecology of the River Murray, a large (2250km) river in South Australia.

The riparian zone of the Murray is dominated by weeping willows (*Salix babylonica*), introduced to stabilise levee banks. The willows crowd the river banks, overhang the water and create slow-flowing marginal areas. For years folklore has suggested that the aquatic communities along the river's margins, and particularly fish, are less diverse and productive in areas overhung by willows than in areas where the native eucalyptus remain.

We now have evidence that the dense underwater rootlets of the willows may produce a (still uncharacterised) chemical that discourages the growth of biofilms and is toxic to invertebrates like shrimps. The possibility of direct toxicity to fish is still under investigation.

The literature specifically on *Salix babylonica* is sparse (e.g. papers by Collier & Winterbourn, Glova et al., Lester et al. in New Zealand, Pigeon & Cairns in Australia). Our difficulty is that we know nothing of other work demonstrating that the submerged branches, leaves, roots or rootlets of trees have adverse effects on littoral fish and invertebrate communities.

If anyone can give us a pointer to published references or other sources we would be grateful. If the response is likely to interest other netters, I would be glad to post a summary. Contact: Assoc. Prof. Keith F. Walker, Department of Zoology, University of Adelaide, South Australia 5005; Tel +61 8 303 5595/3998; Fax +61 8 303 4364; E-mail kwalker@zoology.adelaide.edu.au

Mussel Watch Correspondent: Larry Zuckerman

Word has it that zebra mussels have been found in an Iowa fish hatchery and are also starting to show up in petstores as alternatives to "power-hungry" aquarium filters -- Watch out!!

HAVE YOU SEEN...?

Campbell, R. R. 1993. Rare and endangered fishes and marine mammals of Canada: COSEWIC Fish and Marine Mammal Subcommittee Status Report IX. Can. Field-Naturalist 107: 395-401. *Abstract:* Fourteen status reports representing the 1992 and 1993 fish and marine mammal status assignments have been prepared for publication. Committee (COSEWIC) and Subcommittee (Fish and Marine Mammals) activities are briefly discussed. Tabular lists of fish and marine mammal species assigned status to April 1993, of species currently under consideration, and of those yet to be considered, are presented.

Chesapeake Bay Program, Living Resources Subcommittee. December 1993. Chesapeake Bay Policy for the Introduction of Nonindigenous Aquatic Species. Contact: Frances Crestwell (410) 226-0078.

Ogle, D. H., J. H. Selgeby, R. M. Newman, and M. G. Henry. 1994. Diet and Feeding Periodicity of Ruffe in the St. Louis River Estuary, Lake Superior. Transactions of the American Fisheries Society 124:356-369. *Abstract.* -- Ruffe *Gymnocephalus cernuus*, a percid native to Europe and Asia, is established in the Lake Superior drainage and could

have negative impacts on native fish through competition for forage and predation on fish eggs. We investigated the diet of ruffe in the 4,654 ha St. Louis River Estuary in May-October, 1989-1990, and the feeding periodicity of ruffe in two adjacent habitats during five 24-h periods in summers 1990-1991. Ruffe were primarily benthophagous. Age-0 ruffe fed mostly on cladocerans and copepods in early summer and midge larvae (Chironomidae) in late summer and fall. Adult ruffe less than 12 cm fed mostly on midges and other macrobenthos but also consumed large numbers of microcrustaceans. Adult ruffe 12 cm and larger fed mostly on midges, burrowing mayflies *Hexagenia* spp., and caddisflies (Trichoptera). Ruffe consumed few fish eggs. Adult ruffe in deeper waters and all age-0 ruffe fed throughout the day as indicated by weight patterns of stomach contents. However, adult ruffe generally moved to shallower waters at night to feed most heavily. Results of this study indicate that ruffe will probably compete with other benthic-feeding fishes such as yellow perch *Perca flavescens* and trout-perch *Percopsis omiscomaycus*.

Pullin, R.S.V. 1994. Exotic species and genetically modified organisms in aquaculture and enhanced fisheries: ICLARM's position. *Naga* 17(4): 19-24. (NAGA is the quarterly publication of the International Center for Living Aquatic Resources Management, MCPO Box 2631, 0718 Makati, Metro Manila, Philippines. The ICLARM position "recognizes the needs of development and conservation" and commits ICLARM to "compliance with national and international regulations and protocols (binding or otherwise)" and encourages all concerned with the use of nonindigenous species to do likewise.)

Ogle, D. H. 1995. Ruffe (*Gymnocephalus cernuus*): A review of published literature. Wisconsin Department of Natural Resources Administrative Report no. 38. 44 pages.

In the early to mid 1980s, ruffe (*Gymnocephalus cernuus*) were accidentally introduced into the St. Louis River of the Lake Superior drainage. Apparently introduced through ship ballast, ruffe established a thriving population in the St. Louis River and by the early 1990s had included several other river mouths of Lake Superior in their range. Ruffe are currently not found in any other North American drainage. Suggested managerial responses to ruffe in the Laurentian Great Lakes has ranged from "do nothing" to "control at all costs." Before any plan could be adopted, a thorough review of the scientific literature on ruffe was needed.

With Wisconsin Department of Natural Resources funding, I reviewed all the ruffe literature that was readily available to me as of Fall, 1994. Most of the ruffe literature was from Scandinavia and Russia (and other countries of the former USSR). Many other papers were not available in English. I separated the review into literature originating from Europe and Asia and that already produced in the United States. Within each of these sections, all of the literature pertaining to the following subjects was synthesized: systematics; morphology, evolution, and genetics; sensory physiology; geographic distribution; habitat; reproduction and early life history; age and growth; diet and foraging behavior; community dynamics including egg predation, competition, and predators; parasites and pathology; and management. In addition, I examined studies about the introduction of ruffe in Europe and Asia outside their original range. A total of 213 citations were used in this literature review, although several hundred additional citations were located. Copies of the ruffe literature review can be obtained from the Bureau of Fisheries Management, Wisconsin Department of Natural Resources, Box 7921, Madison, Wisconsin, 53707-7921. In addition, the entire list of citations available to me, along with brief annotations for most, can be located on the Internet through Gopher or the World Wide Web. The Gopher location is seagrant.d.umn.edu or, on the WWW, open the location seagrant.d.umn.edu.

Candidates for IFS Offices

Candidate For President

Neal Foster received his B.A. in Zoology and M.S. and Ph.D. in Vertebrate Zoology (Ichthyology) at Cornell University. During 1965-1976, he was Assistant Curator in the Department of Limnology, Academy of Natural Sciences of Philadelphia. During this period he did fieldwork in freshwater and estuarine habitats ranging from Susquehanna, Potomac, and Savannah Rivers and Chesapeake Bay to tributaries of the Orinoco River in the Venezuelan and Columbian Llanos. For the past 18 years Neal has been a fishery research biologist at the Great Lakes Science Center, National Biological Service, Ann Arbor, Michigan. He has been a member of the AFS since 1961 and of the Introduced Fish Section since 1981. He has served as Michigan Chapter President and as Secretary and Treasurer of the Early Life History Section. His research interests are reproductive biology, early life history, and behavioral ecology of fishes, especially killifishes and lake trout.

Candidate for President-Elect

Eric Hallerman is an Associate Professor in the Department of Fisheries and Wildlife Sciences at Virginia Polytechnic Institute and State University, where he carries out research, teaching, and outreach activities centering on the genetics of fishes. He is standing for office in the Introduced Fish Section to promote Section and AFS activities that support rational policies that balance the needs of aquaculture, fisheries management, and conservation. He previously served as an officer in the Genetics Section and is also a member of the Virginia Tech and Virginia Chapters and the Genetics and Affirmative Action Sections of AFS. Eric holds Bachelors and Masters degrees from the University of Illinois and a Ph.D. from Auburn University. Before coming to Virginia Tech in 1989, he did postdoctoral work at the Hebrew University of Jerusalem and the University of Minnesota.

Candidate for Secretary-Treasurer

Larry D. Zuckerman is an Aquatic Ecologist with the Environmental Services Section of the Kansas Department of Wildlife and Parks. His duties include the documentation of the spread of exotic fishes, research on native stream fishes, the creation of a landscape level habitat model to predict changes in stream fish communities with improved agricultural practices, the review of sportfish stocking policies and Community Lakes Assistance Grants, Threatened & Endangered Species Permits and mitigation for rare fishes. Larry serves on the Kansas Zebra Mussel Task Force. He has been a member of the IFS since its inception and of the parent society since 1975. Larry is the President of the Kansas Chapter of the AFS. He was one of many authors of the AFS Position Paper on the 1995 Farm Bill and its impacts on aquatic ecosystems. Larry volunteers as the Director of the Pure Water For Kansas Program, a Kansas Wildlife Federation statewide stream team effort, and acts as Treasurer for the newly formed Organization of Fish and Wildlife Information Managers. Larry has been in Kansas for eight years in his present position after living in the Colorado Rockies. There, he studied the impacts of introduced fishes on the native fish communities of the Upper Rio Grande and San Luis Closed Basin in a Ph. D. program at Colorado State University. The case study was published in the AFS' 1986 Fish Culture in Fish Management book. Work on the cutthroat trout subspecies of the American West involved meristics and morphometrics, restoration of pure populations, and the elimination of introduced species. Larry received dual Master's degrees from Syracuse University and the SUNY - College of Environmental Sciences and Forestry in 1979. A B.S. in Biology was awarded in 1976 from the SUNY-Stony Brook.

Position as Newsletter Editor

Don Baltz has agreed to continue as our Newsletter Editor. The position is appointed by the President and is not elected by ballot. Thanks Don.