



Introduced Fish Section NEWSLETTER

Editor: Tye Jurgensen

USGS Upper Midwest Environmental Sciences Ctr., 2630 Fanta Reed Road, La Crosse, WI 54603

ben4thos@yahoo.com

Vol. 20 No. 1
January 2003

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INTRODUCED FISH SECTION

President:

Cindy Kolar
USGS Upper Midwest Environmental
Sciences Ctr.
2630 Fanta Reed Road
La Crosse, WI 54603
(608)-783-7550, ext. 34
ckolar@usgs.gov

President-Elect:

Phil Moy
University of Wisconsin - Manitowoc
705 Viebahn Street
Manitowoc, WI 54220-6699
(920) 683-4697
pmoy@uwc.edu

Secretary- Treasurer:

Pam Fuller
USGS Florida Caribbean Science Ctr.
7920 NW 71st Street
Gainesville, FL 32653
(352) 378-8181, ext. 312
Pam_Fuller@usgs.gov

Past-President:

Jaci Savino
USGS Great Lakes Science Ctr.
1451 Green Road
Ann Arbor, MI 48105
(734) 214-7258
Jacqueline_Savino@usgs.gov

President's Message

By Cindy Kolar

Happy New Year IFS members!
As most of you are aware—because you received this newsletter electronically—we decided at the annual business meeting to switch the newsletter to an electronic format for most IFS members. This change was made to provide more bang for the membership buck. As noted below in the minutes, most expenditures incurred by the section have been for newsletters. Last year, these costs (\$1,177) were higher than our membership dues (\$1,050). With an electronic newsletter, we hope to save \$800 this year—money that can be spent supporting initiatives important to our section. We will provide a paper version for those outside the US and to those for whom we do not have an email address. If you received a paper copy and would rather receive an electronic version, or vice versa, email our new newsletter editor, Tye Jurgensen, at ben4thos@yahoo.com and we'll provide the next newsletter in the format you prefer.

Tye Jurgensen replaces Karl Mueller as newsletter editor. I'd like to extend a hearty THANK YOU to Karl for serving so well as newsletter editor for 2 years. We

appreciate your time Karl!
Welcome to Tye—who would be happy to accept submissions on projects you've got going or new information on ANS. Tye will be calling several of you to ask for short submissions to upcoming newsletters. Please help keep the quality of our newsletter high by providing a few paragraphs.

As you'll note, we've been busily working to put together a proposal for a symposium on the introduction of aquatic species from intentional pathways for the 2003 annual meeting in Quebec City. We will send a call for papers to IFS members if it is accepted into the program. Plans are also moving along for the 2003 Propagated Fishes in Resource Management Symposium. See the section on that event for details.

In addition to an update on the electric barrier in Chicago by Phil Moy, and species updates by Pam Fuller, we've added recent publications by IFS members that would be of interest to the section by searching Cambridge Scientific Abstracts. In the future, please email Tye Jurgensen the full citation for your recent publications that would be of interest to IFS members. They will be included in upcoming newsletters. We'd also like to add another section on recent legislation regarding ANS—but we need help. **Please see the ad below and offer your services if you keep close tabs on policy development.**

WANTED

Volunteer to submit updates on legislation on ANS and issues pertinent to IFS members for future newsletters!! New legislation regulating ANS and protecting against their establishment is important to IFS members. If you follow legal issues, please share your findings with the section!! Contact Cindy Kolar for more info.

Business Meeting Notes

Minutes from August 18, 2002 Business Meeting held in Baltimore, MD.

By Pam Fuller

- I. Call to Order - Jaci Savino at 3:05
- II. Introduction of guests
- III. Quorum determination - No quorum. 10 members and 3 visitors were present.
- IV. Approval of business meeting agenda
- V. Approval of minutes of 2001 meeting.
- a. John Epifanio motioned and Charlie Brown seconded.
- VI. President's comments
- a. Our membership is now more than 200. That makes our section a voting member of the governing board. Only 12/22 sections share that distinction.
- b. We published three newsletters this year. Karl Mueller, our current editor, would like to step down and is looking for someone willing to take his place.
- c. Because of the recent events (snakehead, black carp, etc), the section decided we should re-visit the IFS Position Statement on introduced aquatic organisms. We are looking for comments to be

- included in a revision of the 1986 document originally drafted by Chris Kohler and Walt Courtenay. The document is available on the IFS website (<http://www.afsifs.vt.edu/>).
- d. The IFS co-sponsored a symposium this year in conjunction with the Fish Management Section on Management of Invasive Aquatic Species, or are we just kidding ourselves. Charlie Brown (IFS) and Tim Hess (FMS) were the symposium organizers and moderators. (The symposium was very well done - thanks go to Charlie and Tim!).
- e. The section is also involved in organizing a symposium for the 2003 meetings in June in Boise, Idaho. The topic will be "Propagated Fish in Resource Management" and is intended to follow up on previous symposiums done 10 and 20 years ago. The symposium will be a multi-section effort with each section having 3-4 speakers. Currently all speaker slots for our section have been filled but the committee is looking for posters to be contributed. Contact Cindy Kolar if you are interested. The intent of the symposium is to produce a published volume similar to "Uses and Effects of Propagated Fishes" produced some years ago by AFS. A workshop will also be held several months later with resource managers in order to update the 1984 recommendations. John Epifanio motioned that we set aside \$2,000 to cover speaker expenses at this symposium. After considerable discussion of our finances, the group agreed to propose setting aside \$1,000. This would not be a binding commitment.
- f. Potential topics for a 2004 symposium in Madison, Wisconsin were discussed. The one that garnered the most interest was unintentional introductions.
- VII. Treasurer's Report
- a. The section has a current balance of \$9550.77. Our newsletter costs (\$1177.22) slightly exceeded our membership dues (\$1050).

- VIII. Old Business
- a. Jaci is seeking comments on the document "Use of fishes and research guidelines" by John Nickum. The document covers the use of fishes in both lab and field research and was co-sponsored by ASIH and AFRIB. The document will be posted on the IFS website.
- IX. Installation of New Officers
- a. Phil Moy - President Elect
- b. Cindy Kolar - President
- X. New Business
- a. AFS is seeking cutting-edge papers for its journals to use as feature articles. They are also trying to enhance the speed of publication.
- b. The section decided to prepare a letter of support for the listing of black carp and snakeheads as Injurious Wildlife under the Lacey Act.
- c. The group discussed the pros and cons of switching to an electronic newsletter rather than paper. The vast majority of our expenditures are for newsletter printing and mailing. With out membership now, we essentially use all of our dues for the newsletter. It was decided that we would offer member the option for electronic or paper (see note in this newsletter).
- XI. Adjournment - The meeting was adjourned by Cindy Kolar at 4:25.

2003 Symposium Proposal

Cindy Kolar and Phil Moy are co-organizing a symposium on the risks and potential solutions posed by the introduction of aquatic species from intentional pathways for the 2003 annual meeting of the American Fisheries Society in Québec City, Québec. Below is the symposium proposal. A decision as to whether the symposium will appear in the program is due January 20. If accepted, we will send an electronic call for papers to IFS

members. There should be a lot of interest in the topic and we plan a full-day session. Please stay tuned...

Intentional pathways for ANS introductions: the risk and response

Many aquatic nuisance species (ANS) are released or escape after being brought into a watershed intentionally. In the U.S. for instance, over 100 fishes have become established from bait bucket releases and about 65% of the established non-North American fishes are from releases of aquarium fishes. Fish production from aquaculture continues to increase, and it has been suggested that escapes and releases from aquaculture may soon rival shipping as a pathway for ANS. In addition, growing industries selling aquatic organisms, such as online vendors and water garden retailers, may become more important pathways spreading ANS in the future. Balanced against these statistics and potential risks, however, is the need for industries that rely on providing new and novel species to consumers to be able to conduct business viably.

The goal of this symposium is to bring together representatives from affected industries, resource managers, researchers, and others interested in developing ways to further reduce the threat of ANS from intentional pathways. We hope this symposium will aid current research, spur new collaborations, and bring more light to this topic of great economic and ecological importance. As noted in the 2001 National Management Plan for Invasive Species, the first line of defense against ANS is to prevent their initial establishment. In order to be successful, proactive

measures taken to reduce the threat from intentional introductions should include representatives from affected industries early in the process, and should include evaluating the scope of the threat, identifying weaknesses in current approaches, and developing potential remedies and routes for their implementation. Because ANS spread without regard to political boundaries, a binational perspective will be an important focus of the symposium. We hope to discuss these issues from a problem solving and constructive perspective to initiate creative solutions to this difficult problem.

Propagated Fishes In Resource Management Symposium

**June 16-18, 2003
Doubletree Riverside Hotel,
Boise ID**

This symposium promises to be an exciting and innovative look at the use of cultured fishes in resource management. The final papers are coming in for the Propagated Fishes in Resource Management symposium (deadline of January 6, for any last minute submitters out there) and the program is shaping up. Technical sessions will be on 1) perspectives from fishery management, 2) exotic fishes and endangered stocks, 3) evolution and genetics, 4) decision making under risk, and 5) fish health, quality, and

hatchery reform. There will also be a poster session and evening soap box discussions about the talks and posters presented that day. More information will follow. Check the website: <http://www-heb.pac.dfo-mpo.gc.ca/congress/pfirm>.

IFS News

The Chicago Sanitary and Ship Canal Aquatic Nuisance Species Dispersal Barrier – An Astonishing Year

By Phil Moy.

The National Invasive Species Act of 1996 authorized the Army Corps of Engineers to investigate the potential for creating an aquatic nuisance species dispersal barrier in the Chicago Sanitary and Ship Canal. The Chicago Sanitary and Ship Canal system (San-Ship Canal) forms the sole aquatic link between the Great Lakes and Mississippi River drainage basins.

For those of us who have been involved with the Chicago Sanitary and Ship Canal Dispersal Barrier project since first conceived in 1995, the last twelve months have seen an astonishing level of activity. It was only a year ago in December, 2001 that construction of the first dispersal barrier array was completed. After a few nerve-racking months of contract negotiations, the barrier was energized in April 2002. Had it not been for the dramatic leaping, grotesque appearance and potential ecological impacts of the bighead and silver carp, activity with the barrier project might have slowed again with federal funding shortfalls or electrode corrosion as

the decisive factors in operation and long term effect of the barrier.

Renewed focus and attention on the dispersal barrier began shortly after the Great Lakes Protection Fund convened a workshop in June focusing on the Asian carp as an ecological threat to the Great Lakes. Influential scientists began to draw attention to the risk of invasion by these carp in the Great Lakes. The Great Lakes Fishery Commission and International Joint Commission followed up with additional workshops and letters to Washington. As a result of their interest, active participation and financial contributions to the project work began on establishment of a second, longer service life, back-up barrier and funds were provided for purchase of a back-up generator for the first barrier array.

In October, Traci Barkley and Richard Sparks from the Illinois Natural History Survey surgically implanted transponders in 15 common carp located below the barrier. None of these fish have moved upstream through the barrier array. Schools of common carp are visible near the surface of the canal on the downstream side of the barrier, lined up like race horses just beyond the effect of the electric field.

The Illinois Department of Natural Resources, U.S. Army Corps of Engineers and Metropolitan Water Reclamation District of Great Chicago have teamed up with the U.S. Fish and Wildlife Service to increase the frequency of the monitoring effort as bighead carp expand their range north from the Illinois River into the Des Plaines River. In July, bighead carp were caught on a Midwest Generation intake screen in the Des Plaines River is at river mile 274; the

dispersal barrier is located at about river mile 296. Monthly electrofishing surveys have not found bighead carp any farther upstream

On December 2nd the Metropolitan Water Reclamation District of Greater Chicago provided a temporary generator for use as back-up power until the permanent one can be delivered. The generator was installed the following day with only a 5-second shut down. The back-up generator provides an added level of security, maintaining power for the barrier in the event of a power outage, but a second barrier is needed as a failsafe and to allow maintenance of the first array which has an expected service life of only three years.

Most recently, on December 12th the State of Illinois announced that it will contribute \$2 million dollars towards construction of the second barrier array. These funds will be matched at a 3:1 ratio with federal money through the 1135 Environmental Restoration program. Through this effort the State of Illinois has helped ensure that the protection afforded by the dispersal barrier will continue without disruption well into the future. If all goes well construction of the second array could begin in early summer 2003.

Additional barrier technologies that appear promising for the canal include an infrasound bubble screen system that traps the sound in the bubbles to create a "wall" of noise. Fish may be better able to associate the direction of the sound in conjunction with the physical effect of the electric field for a more effective barrier. Mark Pegg with the Illinois Natural History Survey is conducting experimental trials with the electronic and

infrasound-bubble screen barriers in Havana, Illinois.

Electric fields and bubble arrays are near-term, relatively inexpensive approaches that will only affect actively swimming organisms such as fish and potentially large benthic invertebrates; planktonic organisms will not be deterred. Work remains to be done to create a fully effective barrier. In the long term a more permanent solution may be required such as reestablishment of the hydrologic separation between Lake Michigan and the Mississippi River basins.

Species Updates

By Pam Fuller

New Species and Significant Range Expansions for 2002

From the Nonindigenous Aquatic Species Database, U.S. Geological Survey, Gainesville, Florida (11/8/02)

Invertebrates

Zebra Mussels (*Dreissena polymorpha*) were discovered in a quarry in northern Virginia. This is the first sighting for the state. Also, a few individuals were collected in Mississippi Sound, Mississippi (Gulf of Mexico). The number of small inland lakes where zebra mussels have been reported from has risen to 321 around the Great Lakes region.

Quagga mussels (*Dreissena bugensis*) and zebra mussels were collected in a private quarry in eastern Pennsylvania. This was the first location in the state outside the Ohio River drainage.

The Asian clam (*Corbicula fluminea*) has been detected in two new states: Massachusetts (Charles

River) and Rhode Island (Narragansett drainage).

New Zealand mudsnails (*Potamopyrgus antipodarum*) were documented throughout the Colorado River (Grand Canyon) in northern Arizona and in several locations in Utah (Green River) and one location in Oregon. The mudsnails have expanded their range into eight western states.

The fishhook waterflea (*Cercopagis pengoi*) was discovered in Lake Erie over the summer. Add this lake to Lake Michigan, Lake Ontario, and a number of small lakes in New York for the distribution. It is certain to be reported from Lake Huron soon.

The Asian shore crab (*Hemigrapsus sanguineus*) has expanded its range further northward in waters off the coast Maine and can be found as far south as North Carolina.

Vertebrates

From August to October, three ruffe (*Gymnocephalus cernuus*) were collected for the first time in Lake Michigan along the shore of the upper peninsula of Michigan.

Round gobies (*Neogobius melanostomus*) were found in the central portion of Lake Ontario. There are now several populations that span the entire geographic extent of the lake. Round gobies have been collected from all five Great Lakes.

Juvenile lionfish (*Pterois volitans*) have been collected as far north as Long Island. Individuals have also been reported off Bermuda. The source of this population may be aquarium releases, intentional releases by divers, or escapes from a large oceanside aquarium broken during hurricane Andrew.

An established population of armored catfish was recently discovered in North Carolina (may be *Pterygoplichthys gibbiceps*). We are getting numerous reports of armored catfish from around the country. The exact identity of many of these is uncertain because of the many species in the aquarium trade and the difficulty in telling the species apart.

Tench (*Tinca tinca*) were discovered this year in Lake Champlain. The fish are known to have escaped from a stocked pond in Québec. Biologists monitored their movement as they migrated down the Richlieu River into Lake Champlain.

Bufo marinus, the giant toad, appears to be established in Vero Beach, Indian River County, Florida. Over a dozen specimens have been collected and area residents report collecting more. This population reflects a northern expansion of the species along the southeast coast of Florida.

Welcome to new (or renewed) IFS members!

- Paul Angermeier Blacksburg, VA
- James Atz Port Washington, NY
- Kim Bogenschutz Madrid, IA
- Algis Byla Whitewater, WI
- John Christmas Annapolis, MD
- James Clugston Gainesville, FL
- Salvador Conteraras Balderas San Nicolas, Mexico
- Almo Cordone Brookings, OR
- Emmy Creek Hines, OR
- John Dentler Gig Harbor, WA
- Marg Dochoda Ann Arbor, MI
- Richard Dudley Beaverton, OR
- Julia Ellis Gloucester, VA
- Thomas Friesen Oregon City, OR
- Casey Godwin Libertyville, IL
- Thomas Haglund Sherman Oaks, CA
- Donald Hales Ephraim, UT
- Lorenz Hauser Seattle, WA
- Jeffrey Herod Panama City, FL

- Virginia Hoffman Ft. Lauderdale, FL
- Don Keller Montgomery, AL
- John Kuhns N. Kansas City, MO
- Henrique Lazzarot-tode Almeida Rio de Janeiro, Brazil
- Theo Light Sacramento, CA
- Arthur Lupine Manville, NJ
- Stephen McIninch Richmond, VA
- N. M. Meyers Washington, D.C.
- Gary Miller Syracuse, IN
- Lannie Miller Lake View, IA
- Brian Murphy Blacksburg, VA
- Mike Pearson Vancouver, BC
- William Pflieger Ashland, MO
- Steven Phillips Gladstone, OR
- William Robertson Winslow, WA
- Aaron Rosenfield Easton, MD
- Tami Schneck Ft. Collins, CO
- Robert Schroeter Davis, CA
- Andrew Scott Blanchard, ID
- Paul Shaffland Boca Raton, FL

Upcoming Meetings of Interest

March 16-19, 2003: Third International Conference on Marine Bioinvasions, Convened at Scripps Institution of Oceanography, La Jolla, CA. Website: <http://www.sgmeet.com/mb/>

June 9-12, 2003: The 12th International Conference on Aquatic Invasive Species, Convened at the Cleary International Centre, Windsor, ON. Website: <http://www.aquatic-invasive-species-conference.org/>

June 22-26, 2003: Joint Meeting of the International Association for Great Lakes Research (IAGLR) and the International Lake Environment Committee (ILEC), Convened at DePaul University in Chicago, IL.

Website:

<http://www.iaglr.org/conference/conference.html>

July 20-23, 2003: Aquatic Plant Management Society,

Convened at the Holiday Inn by the Bay, Portland, ME.

Website:

<http://www.apms.org>

August 6-7, 2003: Invasive Plants Conference,

Convened at the Morris Arboretum of the University of Pennsylvania, Philadelphia, PA. For a complete brochure contact: Morris Arboretum, 100 Northwestern Avenue, Philadelphia, PA 19118; 215-247-5777 x159

August 10-14, 2003: 133rd

Annual Meeting of the American Fisheries Society,

Convened at the Québec City Convention Centre, Québec City, Québec. Website:

http://www.fapaq.gouv.qc.ca/en/AFS_congres/index_A.htm

November 3-7, 2003: Invasive Plants in Natural and Managed Systems: Linking Science and Management,

Convened at the Wyndham Bonaventure Resort, Ft.

Lauderdale, FL. Website:

<http://www.esa.org/ipinams-emap7/>

Recent Publications by IFS Members

Please submit your new citations to the newsletter editor!

Baldwin, B. S., M. S. Mayer, J. Dayton, N. Pau, J. Mendilla, M. Sullivan, A. Moore, A. Ma, and E. L. Mills. 2002. Comparative growth and feeding in zebra and quagga mussels (*Dreissena polymorpha* and *Dreissena bugensis*): implications for North American Lakes. *Can. J. Fish. Aquat. Sci.* 59:680-694.

Bonar, S. A., B. Bolding, and M. Divens. 2002. Effects of triploid grass carp on aquatic plants, water quality, and public satisfaction in Washington State. *N. Amer. J. Fish. Manage.* 22:96-105.

Downing, G. and M. K. Litvak. 2002. Effects of light intensity, spectral composition and photoperiod on development and hatching of haddock (*Melanogrammus aeglefinus*) embryos. *Aquaculture* 213:265-278.

Harvey, B. C., J. L. White, and R. J. Nakamoto. 2002. Habitat relationships and larval drift of native and nonindigenous fishes in neighboring tributaries of a coastal California river. *Trans. Am. Fish. Soc.* 131:159-170.

Gomez, A., C. J. Adcock, D. H. Lunt, and G. R. Carvalho. 2002. The interplay between colonization history and gene flow in passively dispersing zooplankton: microsatellite analysis of rotifer resting egg banks. *J. Evol. Biol.* 15:158-171.

Grigorovich, I. A., H. J. MacIsaac, N.V. Shedrin, and E. L. Mills. 2002. Patterns and mechanisms of aquatic invertebrate introductions in the Ponto-Caspian region. *Can. J. Fish. Aquat. Sci.* 59:1189-1208.

Kolar, C. S. and D. M. Lodge. 2002. Ecological predictions and risk assessment for alien species. *Science* 298:1233-1236.

Ludwig, A., L. Debus, D. Lieckfeldt, I. Wirgin, N. Benecke, I. Jenneckens, P. Williot, J. R. Waldman, and C. Pitra. 2002. When the American sea sturgeon swam east. *Nature* 419:447-448.

Mitchell, J. J., A. E. Goodwin, M. J. Salmon, and T. M. Brandt. 2002. Experimental infection of an exotic heterophyid trematode *Centrocestus formosanus*, in four aquaculture fishes. *N. Amer. J. Aquac.* 64:55-59.

Na-Nakorn, U., P. Sodsuk, P. Wongra, S. Janekitkarn, and D. M. Bartley. 2002. Isozyme variation among four species of the catfish genus *Clarias*. *J. Fish Biol.* 60:1051-1057.

Vanderploeg, H. A., T.F. Nalepa, D. J. Jude, E. L. Mills, K. T. Holeck, J. R. Liebig, I. A. Grigorovich, and H. Ojaveer. 2002. Dispersal and emerging ecological impacts of Ponto-Caspian species in the Laurentian Great Lakes. *Can. J. Fish. Aquat. Sci.* 59:1209-1228.

Whittier, T. R. D. P. Larsen, S. A. Peterson, and T. M. Kincaid. 2002. A comparison of impoundments and natural drainage lakes in the Northeast USA. *Hydrobiologia* 470:157-171.