

# Introduced Fish Section

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of the American Fisheries Society

## Assessing & Managing Risks Posed by GMOs

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### President's Corner

I needn't remind you (but will anyway) that the American Fisheries Society will hold its 126th Annual Meeting (Theme: "Sustainable Fisheries: Economics, Ecology, and Ethics") at the Hyatt Regency in Dearborn, Michigan, on August 26-29, 1996. The program includes a plenary session, 26 special symposia, 10 contributed paper sessions, various subunit and committee meetings, a poster session, a trade show, and numerous social functions. The technical portion of the meeting will consist of more than 400 oral and poster presentations. Plan ahead now to attend three special symposia that have been organized for this meeting by members of the Introduced Fish Section and are sponsored or co-sponsored by the IFS: (1) On Monday afternoon and Tuesday morning - Introductions of Nonindigenous Fishes or Other Aquatic Species: Impacts and Implications (19 presentations); (2) Wednesday afternoon - Assessing and Managing Risks Posed by Genetically Modified Aquatic Organisms (7 presentations) (2) Thursday morning - Private Aquaculture

Safeguards for Great Lakes Biological Integrity (6 presentations).

If you can access the World Wide Web on your computer (or on someone else's), be sure to visit the new AFS Annual Meeting website at the following URL:

<http://www.great-lakes.net/partners/afs/>

Besides a preregistration form for the meeting, this website features abstracts of all technical papers to be presented along with a search engine to find authors and topics of particular interest to potential attendees. Addresses, phone numbers, and e-mail addresses of authors are included with the abstracts. Having the abstracts of all papers available prior to an annual meeting is apparently unprecedented for AFS!

Look at the special 24-page insert in the June 1996 issue of AFS's monthly publication FISHERIES for general meeting information, a preregistration form, and a tentative schedule of events and presentations. Hotel reservations at the Hyatt Regency (800/233-1234 or 313/593-1234) should have been made by July 18th, and the preregistration deadline is August 1st.

The annual business meeting of the Introduced Fish Section will be held Sunday afternoon, August 25th, from 3:30 to 5:30 PM in the Regency Phoenix-LA-Indianapolis Room-Space. Please plan to attend. Among other

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ings, we'll be discussing a moderate increase in section dues (from \$4 to \$5), "unfunded mandates" from the AFS EXCOM, soliciting nominations for candidates for President-Elect, and recruiting volunteers for section activities such as editing the IFS newsletter and organizing an IFS-sponsored special symposium for the 1997 AFS annual meeting in Monterey, California.

Don Baltz has asked to relinquish his role as our newsletter editor. We're sorry to lose Don's talented services on behalf of IFS (the quality of this newsletter attests to his many skills!), but we thank him for all he has done to keep the news and information flowing to our members. If you would be interested in taking on the IFS newsletter editorship, please do not be shy or modest! Contact Eric Hallerman or me as soon as possible! I expect that Don will also be willing to help his successor (whoever he/she is) get up to speed.

According to our IFS By Laws, our immediate Past-President Denny Lassuy is supposed to serve as the Chairperson of the Nominating Committee. Please contact Denny as soon as possible with your suggestions of candidates for President-Elect. Meanwhile, Larry Zuckerman has kindly agreed to stay on as Secretary Treasurer for an additional term. Thanks, Larry!

### From the Editor

The few responses to my inquiry in the last newsletter about how many of you were connected to the Internet were all positive. From limited data, they indicate a favorable inclination within the membership toward developing the Introduced Fish Section's electronic capabilities. Nevertheless, a few individuals were concerned that we might drop the snail-mail newsletter

too quickly. The paper newsletter should be in business for quite a while. This is a transitional period. Ready access is not available to everyone and I'll bet a few of us still use typewriters (there's one in my lab) instead of computers.

After several years and too few editions, it's time for me to step down as newsletter editor and let someone else take IFS into the electronic information age. If you are interested, please contact me or Eric Hallerman, President-Elect. Eric is very much interested in establishing a Listserve and getting an IFS Homepage on the Internet. See story below.

### Assessing and Managing Risks Posed by Genetically Modified Aquatic Organisms

Correspondent: Eric Hallerman

At the Detroit meeting, the IFS-sponsored symposium, "Assessing and Managing Risks Posed by Genetically Modified Aquatic Organisms", will be held Wednesday the 28th of August 1996 from 1:10 to 4:20 PM in the Rolls Royce Room. The symposium is co-sponsored with the Computer Users Section of AFS and Information Systems for Biotechnology.

### International Symposium on the Biology and Management of the Eurasian Ruffe

The ruffe (*Gymnocephalus cernuus*) has recently invaded waters of the United States and Canada, the United Kingdom, Germany, Croatia and other areas of the world. Managers of watersheds in these regions have looked for useful literature about the ruffe but found that either the literature does not

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exist or it has not been published or translated into English.

To collect information about ruffe from around the world, the U.S. National Oceanic and Atmospheric Administration is supporting an International Ruffe Symposium to be held in the United States in March 1997.

The symposium will include sections on: 1. Fundamental ruffe biology. 2. Ecological effects of introduced ruffe. 3. Ruffe control and management. 4. Environmental economics. Within each section, the organizers hope to feature presentations on different populations of ruffe to help explain the variability of key population and community dynamic parameters of ruffe. A proceedings of the Symposium will be published. For more information contact: Jeffrey Gunderson

Voice: (218) 726-8715 Fax: 726-6556

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### Round Goby I.D. Card Available from Sea Grant

Correspondent: Neal Foster

Minnesota Sea Grant has produced a wallet-sized card to aid anglers in identifying the round goby -- a new, potentially harmful exotic fish found in parts of the Great Lakes. The "Round Goby WATCH" card describes why gobies are a problem, how to identify them (color photo and illustration included), what anglers can do to prevent accidental transport to uninfested waters, and what they should do if they find a goby. This handy, water-resistant card designed with fishing in mind is small enough to fit in a tackle box, wallet, or pocket. "We designed the card especially for anglers because they

are often the first to find a round goby," said Doug Jensen, Minnesota Sea Grant Exotic Species Information Coordinator. "Wild baitfish harvesters, and fishery researchers and managers should also be on the look-out." Anyone who catches a round goby is urged not to throw it back alive. They should kill it and contact one of the agencies listed on their card. Over 100,000 cards were produced jointly with many agencies around the Great Lakes. Single cards are free. Individuals or organizations wishing to obtain cards should contact their state Sea Grant office or state resource management agency. For more information, contact Jensen at (218) 726-8712. The round goby is a small bottom-dwelling fish that is mostly slate-gray, with a distinctive scallop-shaped pelvic (bottom) fin, frog-like raised eyes, and usually a prominent black spot on the dorsal (top) fin. It was originally introduced through ballast water discharge from transoceanic ships. Like the zebra mussel and Eurasian ruffe, the round goby is native to the Black and Caspian seas. Round gobies were first discovered in North America along with their cousin the tubenose goby in 1990 in the St. Clair River near Detroit. The tubenose goby did not thrive, but the round goby quickly spread into Lakes Erie and Michigan where large infestations are now found. The first goby discovered in Lake Superior was detected in the Duluth-Superior harbor in July, 1995. Gobies also infest Lake Huron, Lake St. Clair, and the St. Clair and Detroit Rivers. Gobies eat aquatic insects, mussels and snails. They can grow up to a foot long. Gobies are considered undesirable because they can compete with native fishes for habitat and change the balance of the ecosystem. They

are already causing problems for other bottom-dwelling Great Lakes natives, especially sculpins. Gobies eat fish eggs and young, take over optimal habitat, spawn multiple times a season, and can survive poor water quality conditions. The card was produced in cooperation with the Great Lakes Sea Grant Network, the U. S. Fish and Wildlife Service, the Ontario Ministry of Natural Resources, and state natural resource agencies. The first press run includes customized versions for Ohio, New York, Illinois, Indiana, Michigan, Minnesota, Wisconsin, and Ontario (in English and French). Because regulations vary, each of the nine versions contains a slightly different message regarding possession or transport of gobies. Cards will be distributed through bait shops, marinas, public events, associations, environmental education organizations, and local, state/provincial/tribal and federal resource management offices.

### Announcing the New LIVESEA Listserve

This list serve intends to provide a forum for seafood industry workers involved with the live holding and shipment of seafood, including aquatic plants, destined for markets worldwide. The forum is limited to technical and other practical challenges facing this developing industry. The LiveSea mail group is managed by Brian Paust and Brenda Kleinfelder of the University of Alaska. Both are located at Petersburg, Alaska. If you would like to participate in this list-serve, please contact Kleinfelder or Paust via E-mail at: [TSBLK@ACAD1.ALASKA.EDU](mailto:TSBLK@ACAD1.ALASKA.EDU) -or- [FFBCP@ACAD1.ALASKA.EDU](mailto:FFBCP@ACAD1.ALASKA.EDU) -or- Brian Paust, Alaska Marine Advisory Program, University of

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### Oriental Weatherfish in the Pacific Northwest

Correspondent: Daniel Logan  
 "Two populations of oriental weatherfish *Misgurnus anguillicaudatus* have been documented in the Pacific Northwest. One population is in the Clackamas River Drainage of western Oregon and the second population is in the Snake River drainage of Oregon and Idaho. The western Oregon population appears to be contained in a series of small ponds near the Clackamas River. Weatherfish have not been collected outside of the ponds even though the ponds connect to the Clackamas River by a culvert during normal high water events. The eastern Oregon/western Idaho population is widespread; weatherfish have been collected in the Snake, Malheur, Owyhee, and Boise rivers. Both populations are discussed in an upcoming California Fish and Game article, entitled "Recent collections of exotic aquarium fishes in Oregon and preliminary thermal tolerances of oriental weatherfish and pirapatinga." The California Fish and Game article also describes collections of Chinese fine-scaled loach *Misgurnus mizolepis* and three species of pacus from the freshwaters of Oregon."

### IFS Listserve in the Works

Eric Hallerman will set up an e-mail Listserve to facilitate communications within the IFS. This Listserve hopefully will prove a useful means of rapidly sharing news, asking opinions, and communicating Section goings-on. Anyone wanting to be added to the Listserve can contact Eric at

ehallerm@vt.edu. It is yet an open question whether we should restrict access to the Listserve to active Section members. Eric would like to hear your views.

### **AFS Chapter Resolution Concerning Introductions of Aquatics Species in Oregon**

Correspondent: Denny Lassuy

WHEREAS the Oregon Department of Fish and Wildlife (ODFW) has fishery management responsibility in the waters of the State of Oregon, and WHEREAS ODFW has acknowledged a "major concern" with the introduction of nonnative species into the State of Oregon, and WHEREAS it is the policy of the State of Oregon (State Law ORS 496.012) to prevent the serious depletion of any indigenous (native) species, and WHEREAS the Oregon Fish and Wildlife Commission (Commission) has directed ODFW to draft administrative rules designed to protect native species, and WHEREAS the effects of introduced species are second only to habitat degradation as a factor cited in the endangerment and extinction of North American fishes, and WHEREAS the majority of the federal Endangered Species Act (ESA) listings for threatened or endangered fish species in the State of Oregon, and throughout the United States, have cited the detrimental impacts or continuing threats of nonnative species introduced for purposes of sport fishing (e.g., bait, forage, game) as a factor in the determination to list, and WHEREAS the published position of the American Fisheries Society (AFS) on introduced aquatic species

(copy appended) provides a professionally endorsed research, public review, and interjurisdictional consultation protocol (hereafter, AFS protocol),

THEREFORE BE IT RESOLVED THAT the Oregon Chapter of the AFS commend the Commission and ODFW for publicly recognizing and acting upon a major threat to the biological integrity of Oregon's aquatic ecosystems, and THEREFORE BE IT RESOLVED THAT the Oregon Chapter of the AFS recommend that ODFW abide by standards for all species introductions that are at least as rigorous as the administrative rules that are adopted by the Commission for application to the public, and finally

THEREFORE BE IT RESOLVED THAT for introductions of aquatic species, the Oregon Chapter of the AFS recommend that ODFW adheres to the AFS protocol in its entirety.

#### Source materials:

The first three WHEREAS clauses are quoted from or directly based on information presented in the "Backgrounder" flyer entitled "Protecting the Integrity of Oregon's Native Species" that was provided by ODFW at a public informational meeting.

The second three WHEREAS clauses reflect information abstracted from: Aquatic Nuisance Species Task Force. 1994. Report to Congress: Findings, conclusions, and recommendations of the Intentional Introductions Policy Review. 103rd U.S. Congress.

Lassuy, D.R. 1995. Introduced species as a factor in extinction and endangerment of native fish species. pp.

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391-396. In: H.L. Schramm and R.G. Piper. Uses and Effects of Cultured Fishes in Aquatic Ecosystems. AFS Symposium #15.

Miller, R.R., J.D. Williams, and J.E. Williams. 1989.

Extinctions of North American fishes during the last century. Fisheries 14(6):22-38.

U.S. Congressional Office of Technology Assessment. 1993. Harmful Nonindigenous Species in the United States. OTA-F-565.

For complete copy of AFS Protocol, see: Kohler, C.C. and W.R. Courtenay, Jr. 1986. American Fisheries Society position on introductions of aquatic species. Fisheries 11(2):34-38.

### **Aquatic GMO Performance Standards Software**

Correspondent: Eric Hallerman

Many IFS members are interested in the issue of how to safely develop and use genetically modified aquatic organisms (aquatic GMOS), i.e., how to foster their beneficial uses while minimizing or eliminating any ecological or genetic risks. The U.S. Department of Agriculture organized a working group that developed performance standards for safely conducting research with genetically modified finfish and shellfish. The performance standards are a tool for assessing any risk posed by a proposed experiment with an aquatic GMO, and for managing any risk so identified. The performance standards were officially accepted by USDA in February for use in relevant situations. To facilitate use of the performance standards, a software package was developed,

which has just been made available for release. To receive a hard copy of and/or the software for the performance standards, contact Information Systems for Biotechnology, 120 Engle Hall, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061; send an E-mail message to Doug King at [nbiap@vt.edu](mailto:nbiap@vt.edu); or visit the ISB homepage at <http://www.nbiap.vt.edu>.

### Internet Access to the Nonindigenous Aquatic Species Geographic Database

Correspondents: Fuller, P. L., Foster, A., Boydston, C. P., and Benson, A. B.

In 1978, the Southeastern Biological Science Center in Gainesville, Florida, began collecting information on introduced fishes in southern Florida. In 1992, this function was expanded to include all nonindigenous fishes nationwide. Recently, the nonindigenous aquatic species geographic information system (NAS-GIS) has begun to monitor all nonindigenous freshwater and marine aquatic species including fish, reptiles, amphibians, mammals, tunicates, zebra mussels, invertebrates, parasites / diseases, and plants. While still under development, the NAS-GIS is intended to serve as a high availability server of information on nonindigenous aquatic organisms within U.S. waters and currently contains over 32,400 records on more than 600 species. Real-time queries can be performed at the state, hydrologic basin, or species (coming soon) level with information relating to the taxonomy, identification, native and introduced ranges, method of

introduction, status, and impact of each species. This information can be accessed through our web site at <http://www.nfrcg.gov/nas.htm>. We are constantly adding to our database and welcome all submissions ([nas@nfrcg.gov](mailto:nas@nfrcg.gov) or NAS-GIS, National Biological Service, 7920 NW 71st St., Gainesville, FL 32653, 352-378-8181).

### Putting the Native Back in Wild Trout: Call for Papers

Correspondent: Bob Gresswell

Anyone with an interest in wild trout is invited to submit an abstract to present a contributed paper or poster at Wild Trout VI at Montana State University, Bozeman, on August 18-20, 1997. Suggested sessions are listed below; however, we welcome papers concerning any aspect of wild trout ecology and management. **Abstracts must follow the required format and be received by October 1, 1996.** Please submit abstracts to Bob Gresswell, Wild Trout VI Program Co-chair, by e-mail at [gresswell@ccmail.orst.edu](mailto:gresswell@ccmail.orst.edu), or send a floppy disk (3½ inch preferred, 5¼ inch acceptable) to Bob at Pacific Northwest Research Station, 3200 SW Jefferson Way, Corvallis, OR 97331.

Symposium Sessions August 18-20 will include panels on various aspects of wild trout management.

Potential session topics include:

1. Evolution and biological organization of native trouts in North America
2. Large-scale threats to the future of wild trout (e.g., urbanization and global warming)
3. Ecological restoration of native trout and their habitats
4. Issues associated with native

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- trout restoration
5. Human values associated with wild trout
6. The role of market valuation in the protection of wild trout
7. Developing public awareness about wild trout
8. Effects of government cutbacks and environmental backlash on the future of wild trout.

Abstract Format:

Format all submissions in WordPerfect (version 6.1 or earlier) or ASCII. Use a brief, but descriptive title; skip one line and list the author(s) as you want the name(s) to appear in the abstract booklet. Include complete addresses and phone numbers for all authors. If the first author is not presenting the paper or poster at the meeting, identify the presenter with an asterisk after the name. Provide Fax: and e-mail numbers for the presenter. The abstract is restricted to 200 words or less and will be used to judge the contribution of the presentation or poster. Skip one line after the main body of the abstract and identify your preference using one of the following choices: Oral Presentation, Poster Presentation, or Oral Presentation Preferred/Poster Presentation Acceptable. Presenter will be notified by the program committee regarding acceptance and scheduling of the presentation. Authors of accepted abstracts will have the opportunity to update or amend their abstracts prior to the meeting and will be notified in advance about abstract modification deadlines.

### Parasites in Paradise: Exotic Parasites in Native Hawaiian Gobioid Stream Fishes

Correspondent: William F. Font  
 The Hawai'i Division of Aquatic Resources considers parasitology research to be an integral part of a management program designed to insure the conservation of the 5 native species of stream fishes. These 5 amphidromous gobioids, *Eleotris sandwicensis* (Eleotridae), *Awaous guamensis*, *Lentipes concolor*, *Sicyopterus stimpsoni*, and *Stenogobius hawaiiensis* (Gobiidae), are hosts for 11 species of helminth parasites. Parasites that occur naturally in native Hawaiian stream fishes have been introduced either by birds or from marine fishes. Low levels of prevalence and abundance of these 7 species in stream gobioids make it unlikely that they cause disease in their fish hosts. The most commonly occurring parasites, however, all potentially pathogenic, have been introduced into Hawaiian stream by humans in association with exotic poeciliids, originally brought to the archipelago for mosquito control. The roundworm, *Camallanus cotti*, parasitized native gobioids in 14 of 15 aquatic habitats on the Big Island of Hawai'i. The Asian fish tapeworm, *Bothriocephalus acheilognathi*, and the leech *Myzobdella lugubris*, also abundant and widely distributed, infected fishes on Hawai'i, O'ahu, and Kaua'i. Because these exotic roundworms and tapeworms use freshwater copepods as intermediate hosts, potential for fish disease may vary with stream gradient. High gradient streams, typical of windward coasts in Hawai'i, do not provide suitable conditions for large populations of copepod intermediate hosts. Low transmission rates may keep parasite abundance in stream fishes below pathogenic levels. In low gradient streams, however,

ecological conditions are ideal for high copepod densities and larger numbers of parasites in fishes may cause disease. In the archipelago, windward streams typically have high flow and parasite-induced disease potential in native fishes may not be significant. However, on most Hawaiian islands, water is often diverted from windward streams to leeward sites for agriculture and other purposes, a practice that has important implications for conservation and management of freshwater fishes. Thus, two negative human impacts, introduction of exotic fishes and parasites, and reduced stream flow associated with diversions, act synergistically to increase parasite abundance to pathogenic levels and present a serious threat to native Hawaiian stream fishes.

[WFF:Department of Biological Sciences, Southeastern Louisiana University, Hammond, Louisiana 70402]

### Announcing the Birth of the Native Fish Society

Correspondent: Denny Lassuy

A new native fish ally wriggled out of the gravel this spring and celebrated its birth with a reception and benefit in Portland, Oregon. The newly formed group, the Native Fish Society, has a stated mission "to advocate scientifically sound conservation, protection and recovery actions for native fish and their habitats ... produce educational materials on native fish conservation ... inventory and monitor the status and health of native fish populations and improve our understanding of native fish ecosystem function". The organization has already been involved in flood/habitat restoration efforts, Columbia River salmon policy, dam relicensings, and a variety of media events. For more

information, contact: Bill Bakke, Director, Native Fish Society, P.O. Box 19570, Portland, OR 97280-0570.

### New Marine Biological Invasion List Established by CSIRO, Australia

Correspondent: Jim Carlton

A new mailing / correspondence marine biological invasions list has been established by the Centre for Research on Introduced Marine Pests (CRIMP) of CSIRO in Hobart, Tasmania. Below is the subscription information.

Please note that new subscribers are asked to post a short description of their interests, research, etc. (see details below). To subscribe to the mail list (please) send a message to: [majordomo@ml.csiro.au](mailto:majordomo@ml.csiro.au) (no subject)

In the message space, type the line: subscribe marine-pests youre-mailaddresshere

Where it says "youre-mailaddresshere", type in your E-mail address -- no parentheses, no brackets, and no period at the end

The list manager is Dr. Chad L. Hewitt, CSIRO-CRIMP, Castray Esplanade, GPO Box 1538, Hobart, Tasmania 7001 AUSTRALIA

E-mail: [Chad.Hewitt@ml.csiro.au](mailto:Chad.Hewitt@ml.csiro.au)

TEL: (002) 325 102

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INT. Fax: (+61 02) 325 485

INT. TEL: (+61 02) 325 102

The following is information supplied by Dr. Hewitt about this list:

"The Marine-Pests mailing list is a public mailing list coordinated and owned by the CSIRO Centre for Research on Introduced Marine Pests (CRIMP). Despite the list name, we are more generally interested in introduced species, not just those introductions that attain pest status."

"Biological introductions consist of species which have been transported from one region to another by the activities of humans. These invasions may either be intentional (deliberate) as in species introduced for mariculture activities (e.g., oysters and salmon), or may be accidental, such as the recent ballast water associated introductions (e.g., zebra mussels in the Great Lakes, North America, and the Northern Pacific Seastar, *Asterias amurensis*, in Tasmania, Australia). The various human activities that contribute to biological invasions include current and historic shipping practices such as the movement of ballast (dry, semi-dry and water), hull fouling, and mariculture."

"It is intended that this list will serve to increase communication in the growing international community of researchers concerned with various aspects of biological invasions in the marine environment. We hope that we will attract and encompass people generally interested in biological invasions in all environments, not just marine. The sort of postings we anticipate include: upcoming events related to species introductions such as meetings and symposia related to biological invasions, biological control or eradication techniques, new websites, newsgroups or mailing lists which might be of interest to the general discussion group, general information concerning new invasion research groups or projects information (or alternatively questions) about suspected introduced species."

"As a general rule, new subscribers should issue a short (1 paragraph) statement to the group by way of introduction. Let others know who you are, how you are

interested in marine pests, etc... It is also requested that at the end of each message you both sign and provide your e-mail address to facilitate personal replies. For users new to mailing lists please note that a 'reply' will result in your message being broadcast generally to all list subscribers. If your intention is to reply directly to the individual you will need to specify the appropriate e-mail address."

### Fisheries News

Correspondent: Gene Buck  
[Gene is Senior Analyst for the Congressional Research Service and publishes weekly summaries of fish-related issues for Congress. This selected subset of items of potential IFS interest was extracted from <FISH -

ECOLOGY@SEARN.SUNSET.SE> with Gene's permission. Gene is always looking for new fisheries issues to communicate to Members of Congress and their staff. *Editor*]

Items in this summary were excerpted from a variety of news and information sources. CRS is not responsible for the accuracy of the various news items. Gene would appreciate your feedback on this summary. Comments should be directed to me (gbuck@crs.loc.gov). To further assist me in providing a broad scope of information resources to Congress, I would appreciate being added to any mailing lists of publications, news releases, newsletters, etc. relevant to marine mammals and fisheries. Where there is a subscription cost, a sample copy would provide a basis for deciding whether or not a subscription could be justified.

Archived summaries from the first Friday of each month since July 1994 are available at '<http://www.lsu.edu/~sglegal/summaries.html>'. --Gene Buck, CRS- ENR,

Library of Congress, Washington, DC 20540-7450; e-mail: gbuck@crs.loc.gov

### ESA Salmon and Steelhead

**Listings.** On May 6, 1996, NMFS officials announced that Endangered Species Act listing proposals for steelhead trout from northern California to Washington State were anticipated this spring and that a proposal on coastal coho salmon in California and Oregon would be released by July 1996. On May 28, 1996, NMFS officials announced that a preliminary decision on whether to list {10 populations of} Oregon, Washington, Idaho, and California steelhead trout as threatened or endangered would be issued by early December 1996. A decision on listing Umpqua River, OR, cutthroat trout will be announced by early September 1996. A decision on whether to list Oregon and Northern California coho salmon will be postponed until 1997. [Seattle Post-Intelligencer via Greenwire, Assoc Press]

On June 7, 1996, a coalition of 20 conservation and fishing groups filed a challenge in U.S. District Court in San Francisco to NMFS's court-ordered timetable for listing steelhead trout submitted on May 28. The coalition seeks to minimize any further delay in listing. [Seattle Post-Intelligencer via Greenwire, Assoc Press]

On June 26, 1996, U.S. District Judge Susan Illston made public an order that NMFS decide by the end of July 1996 whether it will list Pacific coast steelhead trout under the Endangered Species Act. [Assoc Press]

**New Hawaiian Regulations.** On May 28, 1996, Hawaiian officials announced new regulations licensing aquafarmers and permitting licensees

to grow and sell native species with few restrictions. Stringent recordkeeping will protect aquafarmers from accusations of illegal harvesting from the wild and increase the likelihood that poachers will be caught. [Assoc Press]

#### **Cutthroat Trout Reintroduction.**

In early May 1996, state and federal managers announced that construction of a breeding pond and habitat improvements will begin during summer 1996 on a project designed to reintroduce cutthroat trout to native habitat in the Little Snake River drainage, WY. [Assoc Press]

#### **Westslope Cutthroat On The Verge Of Extinction?**

By PERRY BACKUS, The Montana Standard, DILLON (AP) When Lewis and Clark made their historic journey through Montana, their journals told about a trout with bright red slash marks by its gills that they first found in the Missouri River near what now is Fort Benton. Now, nearly 200 years later, the westslope cutthroat's range has diminished dramatically, to the point that it now maintains just a tenuous foothold in some isolated creeks, mostly in Southwest Montana.

For years biologists and federal land managers have known the westslope cutthroat was struggling, but they didn't know just how bad the situation was. Last summer, state and federal biologists worked together to assess the extinction risk for the trout. They spread out over the southwest part of the state in search of the fish. When they uncovered pure strains of the westslope cutthroat, the biologists analyzed the trout's chances of survival. What they discovered "was pretty scary", says the U.S. Forest Service's lead

biologist, Brian Sanborn. The biologists were able to find 146 populations of westslope that were at least 90 percent genetically pure. Of those, the biologists surmised 104 had an "extreme" probability of going extinct. The rest were deemed to have moderate to high probability of extinction.

Experts attribute the species' demise to several factors, including water degradation and the introduction of nonnative fish. Sanborn, who has worked extensively with the more high-profile bull trout of Northwestern Montana, said the westslope cutthroat in the Upper Missouri Basin are in "at least as bad a shape as the bull trout". The situation has caught the eye of a number of Montana-based conservation groups. The Greater Yellowstone Coalition, American Wildlands and Northern Rockies Pacific River Council have written letters to the state and Forest Service asking for quick action to save the westslope cutthroat trout. "The Forest Service and the Bureau of Land Management need to take definitive action if the ongoing pattern of stream-by-stream extinction of Montana's native westslope cutthroat trout is going to be halted," the groups wrote in a March 12 letter to the Forest Service and U.S. Bureau of Land Management. "We are rapidly moving towards a situation where an emergency listing under the Endangered Species Act may be warranted."

In a letter responding to the groups, Gov. Marc Racicot said the state has been "actively and aggressively working to conserve westslope cutthroat trout". He pointed out that in 1995 a committee formed that was charged with making recommendations "based on

sound science" to restore the trout within the upper Missouri River Basin. The state also has recommended that federal land management agencies take a close look at management strategies on watersheds that now support relatively strong populations of westslope cutthroat trout, Racicot said in his letter. Those populations may be important for future restoration efforts and reduce the extinction risk, he wrote.

State and federal officials met recently in Butte to continue developing both short- and long-term plans to deal with the problems facing the westslope cutthroat trout. Jack de Golia, spokesman for the Beaverhead-Deerlodge National Forests, said the agencies plan to form a group that will develop a short-term strategy for this summer. The federal land management agencies have been sensitive to the westslope cutthroat's dilemma for some time and many strategies already have been implemented to protect the trout, de Golia said. There probably won't be any dramatic changes in land management this summer, he said. "No one has their minds made up now on how this plan will look", he said. "Everyone will be working toward something that works best for the fish and makes sense for people." Ron Cooper, Northern Rockies coordinator for the Pacific Rivers Council, said that federal land management agencies need to take the lead in preserving these last remnants of the westslope cutthroat populations. "A great deal of these fish are found in headwaters streams", Cooper said. "They've been driven back into these last few strongholds and we can't afford to lose any more." Cooper urged the federal agencies to develop similar



"strategies of protecting riparian areas already in place west of the Continental Divide. Those strategies include creating a 300-foot buffer along streams with populations of pure westslope cutthroat trout. The buffer would force agencies to stop and think before implementing new activities in the area. That wouldn't necessarily mean curtailing existing uses, such as livestock grazing, he said. But, before adding any new activities, such as oil and gas development or logging, the agencies should take a hard look at what that could mean to the trout, Cooper said.

**Trout Blamed for Amphibian Decline.** An article in the May 1996 issue of *Conservation Biology*, suggests that stocking of non-native trout in Yosemite National Park may have contributed to declines in the Park's frog and toad species and their populations. [Assoc Press, Greenwire]

**Yellowstone's Fisheries Management Changing**  
BOZEMAN, Mont. (AP) The U.S. Fish and Wildlife Service is closing its shop in Yellowstone National Park and moving to Bozeman, ending more than three decades of managing fisheries there. It will be up to the National Park Service to take over ongoing projects, including finding ways of controlling growing populations of illegally introduced lake trout in Yellowstone Lake. "We're hoping we can remain involved at least at a technical level", said Lynn Kaeding, who runs the outgoing agency's Yellowstone operations but will be moving to Bozeman after this summer.

Yellowstone currently has no fisheries biologists, but Kaeding said park officials were planning to add

some staff, although finding funding could be a problem. "Everyone is dealing with reduced budgets and a great deal of uncertainty", Kaeding said. Park researcher John Varley said Thursday that an increase in fishing license fees will make up for lost fish and wildlife agency money and allow the lake trout program and others to continue. Lake trout prey on young cutthroat trout, which are native to the park and provide a critical link in the food chain for pelicans, grizzly bears, ospreys, eagles and other predators. Lake trout are not available to those predators because they stay in deeper water, where surface feeders can't reach them.

Field work on lake trout now must be done by the Park Service, Kaeding said. Kaeding and two other staffers will join the Fisheries Assistance Office in Bozeman, where they will concentrate their work on national wildlife refuges and work with Montana fisheries managers on other issues.

**Energy and Natural Resources - Everglades: Alien fish species could disrupt food.**

[April 17, 1996 Greenwire] The Mayan cichlid, a small fish from Central America, has taken over some of the most remote, pristine wetlands in FL's Everglades National Park since it was first spotted in 1983, and biologists fear it could severely disrupt the area's food chain. The U. S. Army Corps of Engineers, which is finishing up a \$121 million plan to return more natural water flows to the region, is paying the National Audubon Society \$390,000 to assess the plan's impact on the park's ecology. Audubon biologist Jerry Lorenz, who has been collecting fish samples in the park's mangrove swamps

since 1989, says his research shows that as the marshes have gotten wetter, cichlid numbers have increased. Almost 40% of his catch over the last three years were cichlids, while at the same time the numbers of native fish have declined. Lorenz: "It's just annihilating the native fish populations." While Lorenz's work suggests the "Mayan invasion" may worsen as efforts to restore the Everglades bring more water into the park, other Everglades ecologists contend that the cichlid is good for the food chain. John Ogden of the South Florida Water Management District: "I don't know what effect they are having on the ecosystem, but I do know that wood storks love them" (Cyril Zaneski, Orlando Sentinel, 4/14).

**Taura Syndrome Virus Strikes SC Shrimp.** In early June 1996, SC Natural Resources Dept. officials projected that as much as half of the commercial Pacific white shrimp crop reared in four SC shrimp farms could be lost to an outbreak of the Taura Syndrome virus. Under SC state regulations, the SC Dept. of Natural Resources ordered all shrimp killed in ponds where the virus was detected. On June 14, 1996, a Charleston Co., SC, judge gave shrimp farmers two weeks to gather information before they are required to follow state regulations and kill all the shrimp in infected ponds. [Assoc Press]

**Nonindigenous Species Hearing.** On July 11, 1996, the House Resource Committee's Subcommittee on Fisheries, Wildlife, and Oceans has tentatively scheduled an oversight hearing on nonindigenous species concerns. [personal communication]

### Other Waterways Need Protection, Lawmakers Say

By KATHERINE RIZZO, AP Writer

WASHINGTON (AP) A law that helped combat zebra mussels in the Great Lakes might help other parts of the country fight additional organic invaders of foreign origin, say two Ohio lawmakers. Sen. John Glenn and Rep. Steve LaTourette on Friday asked Congress to expand to the coastal United States a 1990 law against what Glenn describes as "biological pollution". Standing on the Senate floor before a color-coded map of the U.S. mainland, Glenn showed how an eastern European mollusk with few natural predators on this side of the Atlantic spread over 10 years from shallow Lake Erie to Lake Champlain in the north and south to the Gulf of Mexico. "Now the zebra mussel has companions", said Glenn, a Democrat. "Everything from the Chinese mitten crab to the Alaskan shipworm, which threaten to wreak havoc on all of America's coasts."

Evidence of that concern was demonstrated last week at a conference on waterborne invaders, at which scientists presented papers on types of nonindigenous fish, crabs and other critters that are changing ecosystems. More evidence is on the bill introduced Friday to reauthorize and expand to all U.S. ports a law that forced Great Lakes-bound vessels to exchange ballast water on the high seas instead of in the lakes. Ballast water is what keeps the huge ships stable when traveling without a full cargo load. Several of the cosponsors are from non-Great Lakes states: Hawaii's Dan Inouye, Vermont's Patrick Leahy and both Maryland senators are among Glenn's seven cosponsors on the

Senate bill. The House bill, submitted by Republican LaTourette, includes among its 18 cosponsors New Jersey Reps. Bill Saxton and Bob Franks, and California Reps. Zoe Lofgren and George Miller. "It's no longer just a Great Lakes matter", Glenn said. "We've seen what the zebra mussels can do in the Great Lakes. I don't want that to occur elsewhere in the U.S." The legislation asks the Coast Guard to issue voluntary guidelines asking all ships to exchange ballast water on the high seas to kill off any local waterborne creatures before reaching the U.S. The Great Lakes ballast-exchange rules also began as a voluntary initiative as a way to help the shippers adjust, but later became mandatory.

### HAVE YOU SEEN ... ?

#### The Genetic Impacts of Human Activities on Wild Fish Populations

A. K. Sheridan. 1996. Reviews in Fisheries Science 3(2):91-108  
 ABSTRACT: A review of the literature confirms that human activities have caused genetic changes in some wild fish populations, with most of these changes being adverse. These genetic effects include a reduction in growth rate and/or possibly in age/size at sexual maturity in some heavily fished populations. There was also considerable evidence of hybridization between wild and released populations (sometimes resulting in the loss of the wild population) and the extinction of some wild populations due to habitat changes and to competition and/or predation from introduced species.

There is a need to monitor wild fish populations for genetic

change, with particular emphasis on exploited populations of prominent economic or recreational value.

This is best done by directly examining either the genome (e.g., genetic fingerprinting, with gene probes, DNA sequencing) or gene products (e.g., protein electrophoresis). In order to detect genetic change, it is necessary to have access to at least two chronologically distinct samples of the same population. As DNA is also relatively inexpensive to store, DNA depositories could be established in order to provide a historical record of the genetic composition of populations of either commercial or scientific interest. [NSW Fisheries Research Institute, Cronulla, NSW 2230, Australia]

#### Biodiversity, Fishes, and the Introduction Paradigm.

Courtenay, W. R., Jr., and P. B. Moyle. 1996. Pages 239-252 in: Biodiversity in Managed Landscapes, edited by R. C. Szaro and D. W. Johnson. Oxford University Press, New York.

#### Interbasin Transfer of Aquatic Biota via Anglers' Bait Buckets.

1996. H. R. Ludwig Jr. and J. A. Leitch. Fisheries 21(7):14-18.

### MUSSEL WATCH

#### Conference Find Zebra Mussels with Upper Hand

DEARBORN, Mich. (AP) Despite heavy spending by businesses and municipalities, zebra mussels are continuing to spread, say officials at a conference on the pests and other lakes invaders. The tiny mollusks

blanket the western basin of Lake Erie, roam inland lakes and rivers, and have made it as far south as New Orleans.

"If you look at this in terms of military strategy, we're not in good shape", said Cdr. M. Eric Reeves, chief of marine port and environmental safety for the U.S. Coast Guard's 9th district, based in Cleveland. "We're fighting a battle with an unknown enemy with unknown weapons", he said. Some of the largest industries and municipalities are spending more than \$350,000 a year to keep their intake pipes free of them. But nobody has stopped them from multiplying in open water. Reeves' district is in charge of the American side of the Great Lakes. It inspects foreign vessels to see whether ballast water where fresh water mussel larva can hide has been exchanged at sea. Reeves is among 450 government officials, university researchers, and industry representatives attending the Sixth International Zebra Mussel and Other Aquatic Nuisance Species Conference this week at the Hyatt Regency. It ends Thursday.

The cross-section of attendees is an indication of how concerns are spreading as rapidly as the mollusk. Some came from as far as Alaska and Louisiana. Jeff Reutter, director of the Ohio Sea Grant program in Columbus, said the biological changes caused by mussels and other exotics could impact the lakes more than industrial waste discharges. He said there should be more emphasis on researching exotics. "The bottom line is we're playing with a drastically different system", he said.

Sen. John Glenn, D-Ohio, plans to reintroduce the Nonindigenous Aquatic Nuisance Prevention and Control Act later this month to

renew some of the Coast Guard's congressional authority in battling exotics. Glenn sponsored the 1990 law, which expired last year.

Allegra Cangelosi, spokesman for the Northeast-Midwest Institute, a public policy center in Washington, said the new act would include other ecosystems, including the Chesapeake Bay, the San Francisco Bay and other parts of the West Coast, the Gulf of Mexico, Lake Champlain in Vermont and upstate New York, and the Alaska shoreline. The 1990 act focused on the Great Lakes. It provided the Coast Guard with a \$1 million annual budget for ballast water inspections. That amount likely would increase to \$3 million under the new bill, she said.

#### **New Zebra Mussel Regulations** [via Gene Buck].

On May 1, 1996, the State of Minnesota will begin enforcing new regulations to restrict the transport of zebra mussels, Eurasian milfoil, and other potentially harmful exotic species. Violators can be fined as much as \$500. [ Assoc Press]

#### **Zebra Mussels may be declining in Illinois River** [ via Gene Buck]

04-03-96 PEORIA, Ill. (AP) The number of zebra mussels is decreasing in the Illinois River, but experts have found more of the pesky shellfish along the Mississippi. The tiny parasitic mollusks wreak havoc on water intake pipes and on native freshwater mussels, which are exported to Japan where they are used as the seed to produce cultured pearls in oysters. Many of the mussels in the Illinois River died in the last two years, said Doug Blodgett, a biologist with the state Natural History Survey.

"Originally, when (zebra mussels) first arrived, it looked like they were here to stay, but in 1994 and 1995,

they haven't persisted", he said. Native to the icy Baltic Sea, the zebra mussels were introduced into the Great Lakes in ballast water from ocean-going vessels. They began showing up in large numbers in area rivers and streams in the late 1980s. High sediment levels as well as warmer water kept them from spreading. Illinois River samples once showed more than 70 million zebra mussel larvae per second floating downstream near Havana, but October testing showed dramatically lower numbers. Fisheries biologist Fred Cronin said his studies of the Mississippi River have shown the number of zebra mussels increasing but not as quickly as they did in the Illinois River in 1993.

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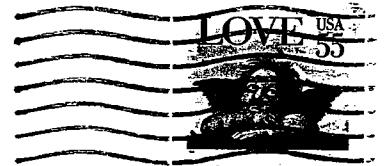
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