N E W S
LETTER

Introduced Fish Section

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American Fisheries Society

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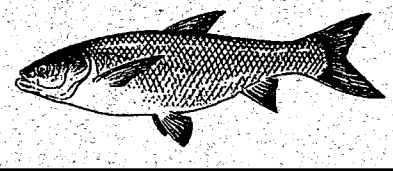

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President's Message

As your outgoing President, I want to say that I am grateful to all who helped me keep things going during the year, especially Charlie Brown and John Cassani. The treasury is in good shape, but the major problem we continue to face as an AFS section is that our membership remains rather small. We are near the critical 200 member level. We should use this year's IFS symposium as a recruiting tool and will have a pile of applications available. Remember, there is an award ($50 in AFS raffle tickets) to the IFS member who recruits the most new members to the Section before September 1st 1999. To qualify, new applications should be submitted to Charles Brown before the business meeting.

The Introduced Fish Section symposium, entitled "Nuisance Species: Are We Spectators, Warriors, or Facilitators?", is scheduled for the morning and afternoon slots on Wednesday, September 1st at the 129th annual meeting of AFS in Charlotte, North Carolina. Check the AFS web site for details (http://www.fisheries.org/annual99/index.htm). With the help of a sponsor, the USFWS Aquatic Nuisance Species Task Force, fifteen speakers have been lined up and the symposium presentations will be followed by a round-table discussion. And immediately following the symposium round-table, we have scheduled a short IFS Business Meeting. I hope to see you all there, and remember to bring a friend who shares an interest in introduced species.

Charles Brown represented IFS at the Virginia Chapter's conference on Introduced Aquatic Species that the Section co-sponsored on September 16, 1998 at Virginia Commonwealth University in Richmond, Virginia. IFS members who gave presentations included Walt Courtenay, Jay Stauffer, and John Epifanio.

IFS elections were conducted in November 1998 and John Cassani and Charles Brown were selected as President-Elect and Secretary/Treasurer, respectively.

The Section also worked with the parent office to publicize the signing of Executive Order 13112, Invasive Species, on February 3rd which launched a long-awaited comprehensive counterattack by federal and state agencies on biological invaders such as zebra mussels by creating a new Invasive Species Council and directing development of an Invasive Species Management Plan, among other actions (to view the full text, search for invasive species at: (http://www.whitehouse.gov/WH/html/library.html). The objectives of the order are ". . . to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. . . ."

Charlie Brown represented the IFS on the Recreational Activities Committee of the Aquatic Nuisance Species Task Force. This committee is developing voluntary national guidelines to prevent the spread of undesirable species through activities such as boating and fishing.

Charles Brown also participated, on behalf of the Introduced Fish Section, in a review of "A Great Lakes Action Plan for the Prevention and Control of Nonindigenous Aquatic

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Presidents Message

Nuisance Species" which is to be presented at the fall 1999 meeting of the Council of Great Lakes Governors.

At the last business meeting (see Minutes in earlier newsletter), the membership voted to provide an award of $150 for the best student paper or poster presented each year at the annual meeting. This year we will have several students making presentations on introduced fishes and competing for the first award.

The Section is in good financial shape and thanks are due to many people, including Charles Brown, our current and long-serving Secretary/ Treasurer, who has brought order to our financial dealings. Denny Lassuy's organization of the Bettas to Biodiversity Symposium at the Monterey meeting in 1997 netted the Section $3,400. John Cassani's efforts in editing "Managing Aquatic Vegetation with Grass Carp: A Guide for Water Resource Managers", have already netted the Section $1,422 as of March 1999. A full treasurer's report will be made at the business meeting.

John Cassani produced three newsletters for the Section. November 1998, May 1999 and August 1999. Now we need a new newsletter editor to take over from John Cassani as he assumes his new role as President in September 1999. Any volunteers?

SPECIES PROFILE:
VEINED RAPA WHELK

A predatory non-native snail was discovered last year in Chesapeake Bay. It has not appeared in the Pacific Northwest, and let's hope it stays that way. However, given that this animal hails from the Sea of Japan and was potentially introduced by ballast water, we need to keep it on our radar screen.

The Veined Rapa Whelk (*Rapana venosa*), aka Asian Rapa Whelk, grows to be rather large. The largest record in the literature for its native range is 18.3 cm shell height from Taiwan. A length of 12.1 cm has been published from the Black Sea. A specimen in excess of 15 cm has been collected in Virginia. It has a heavy short spired shell with a large, ovate opening. The color is variable from gray to red brown, with dark brown dashes on the spiral ribs (hence "veined"). A very characteristic feature of the species is the deep orange aperture and columella.

The United States is not the first invasion for this snail. In the 1940's it was introduced into the Black Sea. Over the next three decades, its range expanded greatly in the Black Sea and into the Adriatic and Aegean Seas. It has been found to be very fertile, tolerant of low salinity, poor water quality, and low oxygen levels. In the Black Sea, the Veined Rapa Whelk has had significant impacts to the benthic ecosystem. It preys heavily on bivalves, generally rasping around the region where the two shells join rather than boring a distinct hole. The snail's expansion is pointed to as a primary reason behind declining mussel populations in Bulgarian waters. These impacts have given rise to considerable concern now in Chesapeake Bay. Large numbers of Veined Rapa Whelk egg masses have been observed, and the snail's range in Chesapeake Bay is expanding. Virginia Sea Grant is part of a program which has established a bounty on this species in order to aid collection and distribution mapping. Ongoing research efforts include analysis of reproductive behavior, predatory impacts and feeding behavior, larval development, and other important topics.

Expect to hear more about this species in the future. For now, you can access photographs and more details at: http://www.vims.edu/fish/oyreef/rapven.html.

AUGUST ANS MEETINGS

On August 17-19 the national ANS Task Force met in Olympia, WA. This group was established by federal law to coordinate governmental ANS efforts. Chaired by NOAA and U.S. Fish & Wildlife Service, the task force included 5 other federal agencies and 10 ex-officio members. They are responsible for establishing national ANS policy and approving/funding state ANS management plans. As part of the meeting, the task force toured several Pacific Northwest sites, including a Puget Sound shellfish aquaculture facility. The task force also heard a variety of regional updates on the morning of August 18th. The final agenda is not yet available but will soon appear on the task force web page at: http://www.anstaskforce.gov.

A free educational forum on ballast water technology was presented during the afternoon of August 19th after the task force meeting. This forum, co-sponsored by PNW MIST, is part of a series traveling the west coast through a California Sea Grant outreach project. A similar ballast water forum is planned for Portland next year (more details on that later).

BALLAST WATER UPDATE

The Port of Oakland adopted an ordinance requiring vessels calling on port facilities to conduct ballast water exchange at sea to help reduce the risk of introducing ANS into the San Francisco Bay and Delta. The ordinance went into effect August 1, 1999. As you may recall, ballast exchange on the west coast is currently voluntary under U.S. federal law. The ordinance is modeled after a similar system in the Port of Vancouver, British Columbia, and was developed as mitigation for development of new berths. Note that the ordinance exempts ballast water originating from other North American west coast ports.

1999 AMERICAN FISHERIES SOCIETY ANNUAL MEETING

Introduced Fish Section Symposium

Nuisance Species: Are We Spectators, Warriors, or Facilitators?

Wednesday, September 1, 1999
Organizers: Charles Brown and Don Baltz
Moderator: Charles Brown and Don Baltz

1. **Activities of the Aquatic Nuisance Species Task Force**, Cathleen Short (Co-Chair, Aquatic Nuisance Species Task Force, U.S. Fish and Wildlife Service, U.S. Department of the Interior, 1849 C St., NW, Room 3245, Washington, DC 20240 cathleen_short@fws.gov)
2. **Implementation of Executive Order 13112,Invasive Species**, Gordon Brown (Invasive Species Coordinator, U.S. Department of the Interior, 1849 C St., NW, Room 6635, Washington, DC 20240; gordon_brown@ios.doi.gov)
3. **Aquatic Pest Management: Lessons From Agriculture**, Charles L. Brown (USDA/APHIS, 4700 River Road, Unit 149, Riverdale, MD, 20737-1238 charles.l.brown@usda.gov)
4. **Tracking the Distribution of Introduced Fishes**, Pam L. Fuller (U.S. Geological Survey, Florida Caribbean Science Center, 7920 NW 71st Street, Gainesville, FL 32653; Pam_Fuller@usgs.gov)
5. **The Asian Swamp Eel: A Recent Invader in the Southeastern United States**, Leo G. Nico, Jim Williams (USGS-BRD Florida Caribbean Science Center, 7920 NW 71st Street, Gainesville, FL 32653; Leo_Nico@usgs.gov), Joel C. Trexler (Department of Biological Sciences, Florida International University, Miami, FL 33199; trexlerj@fiu.edu), and William F. Loftus (USGS-BRD Florida Caribbean Science Center, Everglades National Park Field Station, 40001 State Road 9336, Homestead, FL 33034; Loftus@fiu.edu).
6. **Hypoxic Wetland Tributaries As Faunal Refugia From an Introduced Predator: A Case Study of Lake Nabugabo, Uganda**, A.E. Rosenberger STUDENT and L.J. Chapman (Department of Zoology, University of Florida, Gainesville, FL)
7. **Grass Carp: Silver Bullet or Killer Tomato**, John R. Cassani (Lee County Hyacinth Control District, P.O. Box 60005, Fort Myers, FL 33906; cassj@mail.dms.state.fl.us)
8. **Novel Approaches to Recovery of Native Trout: Opportunities for Broodstock Development**, C. Anna Toline (Department of Fisheries and Wildlife, Utah State University, Logan, UT 84322-5210), Leo Lentsch (Conservation Associates Inc., 154 West 500 South, Logan, UT 84321)
9. **Stephen Forbes, Risk Analysis, and Pests in Trout Systems**, Hiram W. Li (USGS-BRD Oregon Cooperative Fish and Wildlife Research Unit, Department of Fisheries and Wildlife, Oregon State University, Corvallis OR 97331-3803 Hiram.Li@orst.edu), Jeffery Dambacher (Oregon Department of Fish and Wildlife, Corvallis Research Lab, 28655 Hwy 34, Corvallis OR 97333; dambachj@ccmail.orst.edu), Robert Gresswell (USGS-BRD FRESC, 3200 SW Jefferson Way, Corvallis OR 97331; gresswer@ccmail.orst.edu), David A. Beauchamp (USGS-BRD Utah Cooperative Fish and Wildlife Research Unit, Department of Fisheries and Wildlife, Utah State University, Logan UT 84322; fadave@cc.usu.edu), James R. Ruzycki (Yellowstone National Park, NPS, P.O. Box 226 Mammoth WY 82190, Jim_Ruzycki@nps.gov), Philippe Rossignol (Department of Entomology, Oregon State Univer sity, Corvallis OR 97331; rossignp@bcc.orst.edu)
10. **Biological Invasions in Estuaries and Fresh Water: A Millennium Perspective**, Peter B. Moyle (Department of Wildlife, Fish, and Conservation Biology, University of California, Davis, CA; pbmoyle@ucdavis.edu)
11. **Exploring Competitive Mechanisms That Allow Nonnative Brook Trout to Displace Native Cutthroat Trout in a Rocky Mountain Stream**, Douglas C. Novinger STUDENT (Department of Zoology and Physiology, University of Wyoming, Laramie, WY 82071-3166; novinger@uwyo.edu), and Frank J. Rahel (Department of Zoology and Physiology, University of Wyoming, Laramie, WY; frahel@uwyo.edu)
12. **Is the Past the Key to the Future? Developing Predictors of Invading Fishes in the Great Lakes**, Cindy Kolar STUDENT (Department of Biological Sciences, University of Notre Dame, Notre Dame IN 46556; kolar.2@nd.edu), and David Lodge (Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556; lodge.l@nd.edu)
13. **Reduction in Recruitment of White Bass in Lake Erie after Invasion of White Perch**, Charles P. Madenjian (USGS-BRD, Great lakes Science Center, 1451 Green Road, Ann Arbor, MI 48105; chuck_madenjian@usgs.gov), Roger L. Knight (Ohio Department of Natural Resources, Sandusky Fisheries Research Station, 305 East Shoreline Drive, Sandusky, Ohio 44870; roger.knight@dnr.state.oh.us), Michael T. Bur (USGS-BRD, Great Lakes Science Center, Lake Erie Biological Station, 6100 Columbus Avenue, Sandusky, Ohio 44870; glsc_lakeerie@usgs.gov)
14. **Mechanisms for Invading Round Goby Effects on Lake Ecosystems**, Chris Davis, STUDENT (cjdavis@bgnet.bgsu.edu), Michael Bombich (bombich@bgnet.bgsu.edu), and Jeffrey G. Miner (jminer@bgnet.bgsu.edu), (Department of Biological Sciences, Bowling Green State University, Bowling Green, OH 43403
15. **Response of the Otsego Lake Pelagic Food-web to Alewife (*Alosa pseudoharengus*) Introduction**, David M. Warner STUDENT (SUNY Oneonta Biological Field Station, RD 2 Box 1066, Cooperstown, NY 13326; davem@telenet.net), Lars G. Rudstam (Cornell University Biological Field Station, 900 Shackelton Point Rd., Bridgeport, NY 13030; lgrl@cornell.edu), and Willard N. Harman (SUNY Oneonta Biological Field Station, RD 2 Box 1066, Cooperstown, NY 13326 harmanwn@oneonta.edu)

GREEN CRAB UPDATE

Could La Nina be providing a natural control of green crabs (*Carcinus maenas)*? Investigators in Oregon and Washington continue to find no evidence of the 1998/99 year class. It could be that recruitment is later than anticipated, or perhaps just wasn't successful this year. New recruits are appearing in Bodega Harbor, California, but at low levels compared to prior years. And it's not just the new recruits - the abundance of the 1997-98 year class appears significantly reduced in the Northwest. Sylvia Yamada and Chris Hunt report relatively low catch-per-unit-effort for sampling in Coos Bay and Yaquina Bay. Brett Dumbauld of Washington Department of Fish & Wildlife also reports reduced trapping success in Willapa Bay. Of course, reproduction continues this year - John Faudskar reported interrupting an intimate moment between a 67.1 mm male (that's carapace width) and 44.2 mm female green crab at his oyster bed at about the plus one foot tide level. John also recently heard from Tillamook Bay National Estuary Program staff that two scuba divers reported "hundreds of the things down there" in Tillamook Bay and brought back several that were positively identified. By the way, some promising Dungeness crab news: Sylvia reports catching great numbers of juveniles ranging in size from 8-33 mm.

Meanwhile, the invasion front advances. Green crabs have now been found on the west coast of Vancouver Island in British Columbia. A live 60 mm female crab was first found at the head of Barkley Sound on June 17 th at the 0.3 m tide level on the north end of the Imperial Eagle Clam Company. It is believed to have arrived by larval transport during the 1997-98 recruitment as there is no known commercial transport of live shellfish to this site. A second adult green crab, a male, was collected in Barkley Sound on June 29 with modified minnow traps (baited with clams). Three more adults were collected on July 13th in Barkley Sound on the external surface of clam wet storage cages set at about the 1 ft. tide level near the mouth of a small stream. One was a male, one was a female and one got away. B.C. investigators report that visual searches at low tide are proving more productive than trapping. Next stop - SE Alaska?

A final note on green crab predation research. Sylvia Yamada has found great success in using survival of tethered Littorina sitkana snails as a measure of crab predation rate. She set out 50 tethered snails at 4 sites in Yaquina Bay and measured predation rates between 14% and 20% per day per site. Subsequent trapping yielded green crabs at 3 of the 4 sites (there did not appear to be a significant difference in predation rate between the sites). Snails are useful model prey because different claw sizes and shapes leave distinctly different "signatures."

WEB SITES

A number of Great Lakes and east coast Sea Grant programs have developed excellent web sites on ANS. They provide an extensive set of links and good general information. Here are a few recommendations:

*M.I.T. marine invasions page: http://massbay.mit.edu/exoticspecies/

*National SG ANS page (Great Lakes Network): http://www.ansc.purdue.edu/sgnis/

*ANS Clearinghouse (NY SG): http://www.entryway.com/seagrant/

NON INDIGENOUS AQUATIC SPECIES INFORMATION RESOURCES

The NAS information resources are digital data sets and syntheses of reported observations of non indigenous aquatic species throughout the United States. These confirmed reports come from a variety of sources such as federal, state, and local agencies, universities, commercial, and private groups. The on-line NAS data base is comprised of observed accounts of introduced vertebrates, invertebrates, plants, diseases, and parasites. A majority of the records are of fishes, plants, and zebra mussels. Each record contains taxonomic, geographical, and environmental information. It also includes information about the collection such as method used, number collected, size, age, and specimen storage.

Additional publications including the "Non indigenous Aquatic Nuisance Prevention and Control Act of 1990" and "Aquatic Nuisance Species Task Force. 1994. Report to Congress: Findings, Conclusions, and Recommendations of the Intentional Introduction Policy Review" are accessible. Lists of state and national contacts are maintained as well as links to other related sites.

FBIC Cooperation/Unrestricted: Acknowledgment of use in any publication or reports is expected.

Database Manager/Contact Person
NAS Coordinator Southeastern Biological Science Center, U.S. Department of the Interior, 7920 NW 71st Street, Gainesville, FL 32606 (352) 378-8181 (352) 378-4956 (FAX)
--no telnet-
Charles_Boydstun@nbs.gov
Owner of Database is the National Biological Service Request data from above contact.

Format
Data - format is electronic. Data is continually revised. Database was created in 1985. Time Period of Content: 1850 to present.
The Database is available in electronic format only because of the size. Small queries of the database could be available on paper. The summary of fish data will be available in the NBS publication, "A Preliminary Report on Non indigenous Fishes in Inland Waters of the United States." Annually produced reports, fact sheets, and maps regarding zebra mussel and other species of concern within the U.S., Canada, and Mexico are also available.

Database Specifications
This is a geographic database.
Summary information on the Southeastern Biological Science Center is available at: http://www.nfrcg.gov
A volunteer reporting form is accessible at: http://www.nfrcg.gov/nas/report.html
An introduction to the geographic information is at: http://www.nfrcg.gov/NAS-GIS.overview.html
Electronic Specifications: Multiple Hardware Platforms: Data General/SUN/Intel
Operating System: UNIX/Windows/NT
Language/Software: INGRES,ARC/INFO
Size: 35,000 records
Data can be downloaded to disks or tape. Many standard products are available via FTP.

WORKSHOP PROCEEDINGS AVAILABLE ON CO-OCCURRING NATIVE AND INTRODUCED FISHES

Management implications of Co-Occurring Native and Introduced Fishes Proceedings of the Workshop held October 27-28, 1998 in Portland, Oregon, are available in PDF format from the conferences website (http://www.nwr.noaa.gov/nnative/. The conference was sponsored by the Oregon Department of Fish & Wildlife and the National Marine Fisheries Service

The conference focused on the management implications and ecological interactions of exotic fishes, and their potential contribution to the decline of anadromous and resident indigenous fish species.

Individual Papers are available in PDF format. (It is recommended that this file also be downloaded, for proper citation and preface to the individual papers)

History, Distribution, and Recent Management of Introduced Fishes

*"The Coming of the Pond Fishes", *Herb Pollard*
*Distribution and Recent Management of Introduced Fishes in Washington, *Bill Zook*
*Distribution and Recent Management of Introduced Fishes in Oregon, *Kin Daily*
*History and Distribution of Introduced Fish in California, *Dennis Lee*
*Distribution and Recent Management of Introduced Fishes in Idaho, *Bill Hutchinson and Sharon Clark*

Management Perspectives

*Introduced Species as a Factor in Extinction and Endangerment of Native Fish Species, *Denny Lassuy*
*A Review of the Federal Policy for Conserving Species Listed or Proposed for Listing under the Endangered Species Act, while providing and Enhancing Recreational Fisheries Opportunities *Denny Lassuy, Robert Batky, and David Harrelson*
*Introduced Fish Issues in the West: An Overview *Ray Temple*
*Recreational Fishery Management Issues in Oregon *Kin Daily*
*Recreational and Economic Importance of Introduced Fishes in Washington, *Bill Zook*
*Non-native Fish Issues and Management in California, *Dennis Lee*
*Bass Anglers Perspective on the Recreation and Economics of Oregon Black Bass Fishing: An Argument Against De-Regulation, *Bruce Shupp*

Investigations and Case Studies

*Umpqua Fisheries Concerns - Why Not Blame It on the Bass?, *Dave Loomis*
*John Day River Smallmouth Study, *Tim Unterwegner*
*View of Columbia River Predation Studies, *Mark Zimmerman*
*Lower Yakima River Predatory Fish Monitoring: Progress Report 1998, *Geoffrey McMichael, Anthony Fritts, Todd Pearsons, and James Dunnigan*
*Interactions between Coho Salmon and Warmwater Fish in Western Washington, *Scott Bonar, Bruce Bolding, Marc Divens and William Meyer*
*Competition and predation between rainbow trout and largemouth bass in Crane Prairie Reservoir *Terry Shrader and Barron Moody*
*Dietary Overlap between Introduced Fishes and Juvenile Salmonids in Lower Granite Reservoir, Idaho-Washington, *Christopher Karchesky and David Bennett*

Strategies for Today

*Bringing Back the Natives in Arizona, *Joe Janisch*
*Population Assessment and Experimental Control of Lake Trout in Upper Priest Lake, Idaho, *Jim Fredericks, Ned Horner, and Eric Crawford*
*Biological and Social Impacts of the Illegal Introduction of Northern Pike into Northern Idaho, *Ned Horner*
*Regulations: A Tool in Native Fish Management *Joe Janisch*
*The Effect of Striped Bass Predation on Recovery of The Endangered Sacramento River Winter Chinook: A Bayesian Population Viability Analysis *Steve Lindley and Michael Mohr*
*Management of Aquatic Plants in Washington State Using Triploid Grass Carp, *Scott Bonar, Bruce Bolding and Marc Divens*
*Effects of Grass Carp on Warmwater Fish and Coho Salmon in Devils Lake, Oregon, *Bob Buckman and Kin Daily*

Tools for Tomorrow

*So Many Predatory Resident Fishes - What Needs to be Done?, *David Bennett*
*Modeling Food Web Interactions: A Conceptual Framework and Application for Managing Native-Nonnative Assemblages, *David Beauchamp*
*Historical Reconstruction, Through Qualitative Modeling, of the Effects of Exotic Fish Introductions In Tenmile Lakes Oregon, *Jeffrey Dambacher, Hiram Li, and Philippe Rossignol*
*Managing Fish Predators and Competitors: Deciding when Intervention is Effective and Appropriate, *Ray Beamesderfer*

For printed copies of the workshop proceedings, or further information on the workshop, please contact Gloria Matthews, 503/230-5407

BALLAST WATER MANAGEMENT FOR ALL U.S. PORTS

On May 17, 1999, the Coast Guard published an interim rule to control the invasion of aquatic nuisance species by amending regulations applicable to the Great Lakes, establishing voluntary ballast water management guidelines for all other U.S. waters, and establishing mandatory reporting for nearly all vessels entering U.S. waters beginning July 1, 1999.

Federal Register

ROUND GOBY ARRIVES IN MILWAUKEE

On July 16, 1999, officials of the WI Dept. of Natural Resources announced that the first round goby had been discovered in the Milwaukee harbor. This European fish likely arrived in the Great Lakes in the late 1980's in ship ballast water.

Milwaukee Journal Sentinel

ZEBRA MUSSEL PROBLEMS

On June 5, 1999, Commonwealth Edison, for the second time in three weeks, had to power down one of the two reactors at the LaSalle Nuclear Power Station, LaSalle County IL, to 60% capacity so that its clogged cooling system could be cleared of dead zebra mussels.

Chicago Tribune

CHINESE MITTEN CRABS

On May 5, 1999, the CA Fish and Game Commission voted against granting an experimental permit to the Pacific Coast Federation of Fishermen's Associations for harvest and control of Chinese mitten crabs. Instead, the Commission urged the CA Dept. of Health Services to expedite testing of mitten crabs to address human health concerns. CA Dept. of Fish and Game managers are to report back to the Commission in August 1999 on Dept. of Health Services progress and successful crab trapping methods

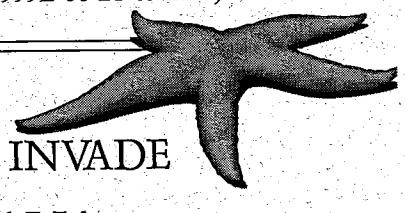
GOBY ROUNDUP

In mid-June 1999, 13 boat crews from federal, state, and local environmental agencies used trawl nets, set lines, traps, and rods and reels in the 4th Annual Goby Roundup to assess how far inland round gobies may have invaded waterways between the mouth of the Chicago River and the Illinois River south of Joliet. Initial tests indicate the fish may have moved at least 2 miles farther inland toward the Mississippi River.

Daily Southtown

UNDERWATER SPARKER CUTS ZEBRA MUSSEL CONTROL COSTS

A new method has been found to combat invasive zebra mussels with tiny shell clusters that quickly clog freshwater intake pipes of utility companies.
(<http://ens.lycos.com/ens/jun99/1999L-06-21-09.html)



SEASTARS INVADE AUSTRALIA WATERS

A marine invader has established itself in Australia, and is rapidly expanding its numbers and its range, Australian scientists report. The Pacific seastar, *Asterias amurensis*, poses a serious environmental threat to coastal centers from New South Wales to Western Australia, the scientists conclude.
(<http://www.enn.com/news/enn-stories/1999/06/062299/Seastars 3749.asp)

LAKE DAVIS PIKE

On June 10, 1999, the CA Dept. of Fish and Game announced that a $25,000 reward was being offered for information leading to the arrest and conviction of persons responsible for planting northern pike in Lake Davis. This was increased by a $5,000 reward offered by the Plumas County Fish and Game Commission. In early June 1999, samples from the 2 Lake Davis pike were sent to a DNA lab at UCLA to determine if the pike were illegally planted or survived the poisoning of Lake Davis. Since catfish also appear to have survived the poisoning, opinion is shifting to consider the possibility that pike and catfish survived the poisoning by remaining in springs at the bottom of Lake Davis.

San Francisco Examiner,
Sacramento Bee,
Contra Costa Times

Alien Invasion

by Richard K. Wallace

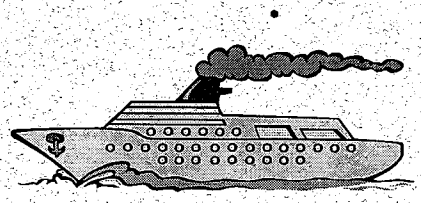
Alien species are becoming a major focus of environmental and economic concerns. A recent report suggests that 49 percent of imperiled, native species in the United States are adversely impacted by alien species. Meanwhile, attempts to control alien species are costing tax payers up to a billion dollars a year.

Alien species, also known as non-indigenous, non-natives, introduced or exotic species are taking over the country by some accounts. The Office of Technology Assessment estimates there are at least 4,500 alien species established in the United States. Some of these species are essential to agriculture and aquaculture while others, such as pets and ornamental plants, have become a part of our everyday lives. However, some experts estimate 15 percent of introduced species are causing widespread, costly problems.

While non-native species include numerous terrestrial animals and plants, invaders living in the water are receiving current attention. A well-publicized zebra mussel infestation, as well as some older invaders, such as the water weeds, hydrilla and water hyacinth, are good examples. These and other aliens inhabiting rivers, streams, lakes, wetlands, estuaries and even the ocean, are often called aquatic nuisance species.

Aquatic nuisance species can affect native plants and animals through predation, parasitism, competition, disease, hybridization and habitat alteration. Economic losses have occurred to industrial water users, municipal water systems, nuclear power plants, fisheries and water-related recreational industries. Control of just water weeds and zebra mussels is estimated to cost $200 million annually.

These ecological and economic impacts suggest that aquatic nuisance species will be the subject of further regulatory actions. These actions, and in



some cases guidelines, will focus on controlling the pathways of invasion. One pathway, ballast water from shipping, is already the subject of ongoing regulatory activity by the United States Coast Guard. Ballast water has been implicated as the source for a number of introductions into the Great lakes such as the spiny water flea, round goby, ruffe and zebra mussel. Other invasion pathways remain unregulated or poorly regulated.

As the public and elected officials become more aware of the environmental and economic costs of aquatic nuisance species, aquatic-related industries, such as aquaculture, water gardening, and the aquarium trade, can expect questions about what role they might play in preventing the spread of aquatic invaders. Proactive industry leaders and associations will be able to demonstrate that safeguards are already in place or being implemented. Those industries that ultimately pass control of exotic species to consumers will need to be actively involved in educating consumers about the perils and proper disposal of all aquatic plants and organisms.

Alabama Cooperative Extension System, Auburn University. For more information, please call 334/844-5680.

NEW TV SPECIAL ON "AQUATIC INVADERS"

A new TV special on aquatic nuisance species premiered August 14, 1999, on CNBC 3:30 pm EDT, 2:30 pm Central, 1:30 pm Mountain, and 12:30 pm PDT. Additional air times will be announced at a later date.

Millions of Americans rely on our fresh and marine water for food, transportation and recreation. Yet now, the very survival of many water-based industries - particularly sport and commercial fishing - is in danger due to invasive species or "aquatic invaders."

A growing number of non-indigenous (non-native) animals and plants are invading coastal and inland waters in North America. Fish, crabs and clams originating in Europe and Asia threaten our native populations from the Great Lakes to the Gulf of Mexico and from the eastern seaboard to the Pacific Northwest. In their native waters, these organisms may be relatively harmless and even beneficial. However, when transplanted elsewhere, they can create serious problems.

For example, a small mussel that invaded the Great Lakes just over a decade ago has upset a delicate ecosystem, affected sport and commercial fishing, and interfered with water supply systems. Tens of millions of dollars are invested annually in control programs. Introduced primarily through the ballast water of ocean-going vessels, this mussel - and other aquatic invaders - have spread rapidly throughout large areas of North America.

An upcoming edition of TECHNO 2100: "Aquatic Invaders" takes a look at the threats these aquatic nuisance species pose, and how scientists, the public, and policy makers are working to prevent the spread of these potentially devastating invaders.

This 30-minute TV special was produced by Information Television Network in collaboration with the U.S. Environmental Protection Agency and various other U.S. and Canadian federal agencies and Great Lakes states. The special was co-hosted by Dr. Michael J. Donahue of the Great Lakes Commission and Dr. James T. Carlton of the Williams College/Mystic Seaport Maritime Studies Program. The program premiered on CNBC on Saturday, August 14. For additional information, please call 1-888-380-6500 or visit http://www.itvisus.com.

Special thanks to the following organizations:

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"Aquatic Invaders"

*Michigan Office of the Great Lakes
*Indiana Division of Fish and Wildlife
*Ohio Division of Wildlife
*United States Coast Guard
*Pennsylvania Department of Environ mental Protection
*Minnesota Department of Natural Resources
*New York State Department of Environmental Conservation
*Great Lakes Fishery Commission
*Department of Fisheries and Oceans Canada
*United States Fish and Wildlife Service

Press Advisory from the Information Television Network (ITV)

VIDEO ON ANS DETECTION

Although preventing new ANS introductions is paramount, the next best measure is early detection and control. However, an invasion can literally begin with one individual organism, which creates a major "needle-in-the-haystack" challenge. To improve the odds of identifying a new ANS before it "takes over", Oregon Sea Grant is leading production of a new educational video. The video will target folks who tend to spend a lot of the time in aquatic habitats - agency field staff, aquaculture operators, citizen/watershed monitoring groups, anglers, divers, etc. While this audience is generally in the field of other reasons, they can greatly expand the network of "lookouts" if armed with some basic facts about ANS.

The video is still in the planning phase, but will likely provide some introductory information about ANS and then feature a series of species. Information on identifying characteristics, habitat preferences, and basic sampling procedures will be highlighted. As a product of the Pacific NW Marine Invasive Species Team, the video will cover both Oregon and Washington waters. I'll be working closely with Carol Sigbley, Oregon Sea Grant Communication's new videographer, to develop this video. We are just beginning to look at existing information and existing footage sources, review needs, distribution, etc., and probably will be contacting a number of you soon for ideas. Stay tuned for more on this video as our plans develop.

Submitted by Donald M. Baltz

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(1998 - 1999)

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