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Regional SFC Reports

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REGIONAL SFC REPORTS

REGION I - Northeast

Bob Jenkins at Roanoke College is still redhorsing around. He's trying to track down a complete specimen of the robust redhorse from the Pee Dee River; all he has now is a bag of bones. Chris Sample of SCDNR has been saving specimens for him. No luck so far. Work continues on the sicklefin redhorse. Bob also is attempting to sort out what, at first glance, appeared to be hybrid redhorses from the Pee Dee, but now might be the same as the oddball Mox from the Cape Fear River. His survey work on *Etheostoma osburni* in Virginia revealed no new populations. It is strong in Big Stony Creek and barely persisting in Laurel Fork. The introduced James River *Notropis telescopus* is sweeping through that drainage. It can now be found in the mid-Piedmont below Lynchburg. Bob has a student comparing food habits of it and *N. semperasper* which are now sympatric, a potential problem. Another student is comparing the food habits of young and small juveniles of *Moxostoma carinatum* and when they switch to mollusks.

Work at VPI under Paul Angermeier is winding down from last year. Kevin Leftwich finished his dissertation on habitat models of *Percina burtoni*. Bill Ensign and Kevin did some sampling in Russell Fork of the Ohio drainage and caught the first *Percina maculata* taken in the state since 1937. It was taken 1 km inside the border. Other species of note collected was *Etheostoma blennioides*.

Mike Pinder has taken over for Sue Bruenderman in the Virginia Department of Game and Inland Fisheries, Nongame Section. Mike and his coworkers collected 12 specimens of *Etheostoma acuticeps* at four sites in the South Fork Holston River between the confluence of Laurel Creek and the South Holston Reservoir. They snorkeled and electrofished. None were found above this point, apparently due to water temperature change. They also found a good population of *Etheostoma chlorobranchium* in Laurel Creek. They surveyed two sites (day and night) in Copper Creek, and found one *Etheostoma percnurum*, one *Noturus flavus*, and one hellbender. There was a heavy load of sediment present. Mike has a meeting planned with local landowners to discuss what they have and the need to protect the fauna. The August issue of *Virginia Wildlife* will be dedicated to Copper Creek. A state fishery biologist located two new populations of *Phoxinus tennesseensis*; a state survey 20 years ago identified them as *oreas*. *Noturus gilberti* was collected in Cowpasture River in the northwest part of the James River drainage.

John Alderman of North Carolina Wildlife, Nongame Section, has been investigating aspects of the life history of *Notropis mekistocholas*. He has found it to have two spawning periods - a primary one in mid-May and a secondary one in August. He is not sure how long it lives, but hopes to determine that this year by examining museum specimens. John also hopes to sample the Cape Fear River below Buckhorn Dam during the primary spawning period to see if it exists in that portion of the river. One issue facing North Carolina is the number of reservoirs permitted and proposed for the piedmont region, particularly in the Neuse River basin. There is one planned near Wilson which will inundate about 1000 acres of wooded wetlands and one on the Little River in Wake County which will impact 700-800 more acres of wetlands. John has been working hard to identify and protect our aquatic resources, especially the mussels and reservoirs obviously have the potential to greatly reduce the aquatic diversity found in North Carolina.

The North Carolina State Museum of Natural Sciences hopes (plans?) on publishing the endangered report on freshwater fishes this year. Ed Menhinick is the editor.

Fritz Rohde (FCR) of the North Carolina Division of Marine Fisheries and Mary Moser of the University of North Carolina at Wilmington have been conducting status surveys on various NC state-listed fishes found in the mountains. The lower French Broad River from Redmon Dam at Marshall down to the North Carolina/Tennessee border was sampled as well as two major tributaries. Also, the Cane River was searched for *Luxilus chrysocephalus*. Two interesting finds were the first capture of *Noturus flavus* from the French Broad drainage and the first state record of *Ichthyomyzon bdellium*.

Rudy Arndt of Richard Stockton College of New Jersey made three trips to South Carolina collecting fishes for the

Although it was believed to be a duskytail darter (*Etheostoma percnurum*) at the time of collection, identification of this juvenile was uncertain (which is why it was kept live). However, as it became an adult, its size, proportions and markings were different than duskytail darters, and at approximately one year of age the individual was preserved for more precise scrutiny. Dr. Robert Jenkins has concluded that this individual represents a different taxon from any previously known. At present, the ecological or taxonomic relationship between this darter and the syntopic duskytail darter is unclear, as is its distribution, or population size. CFI is contracted to the National Park Service (Big South Fork National River & Recreation Area) to do a float survey of the section of the Big South Fork between the mouth of Station Camp Creek downstream to just below the Kentucky/ Tennessee state line. This survey is specifically designed to document the distribution of the duskytail darter, but more specimens of the other *Catonotus* will certainly be looked for.

During a routine IBI survey at TVA's site in the Little Tennessee River just above Fontana Reservoir (Swain Co., North Carolina), Ed Scott collected two *Noturus flavus* (one released, one voucher specimen preserved). Although the species was reported (with some concern for accuracy of locality data) from the 1957 Abrams Creek reclamation, it has not been recorded from the Little Tennessee River system since. Stonecats are regarded as Endangered in North Carolina.

FWS funded additional attempts by Brooks Burr and David Eisenhour to collect the *Noturus elegans*-type "Chucky madtom" from Little Chucky Creek (Nolichucky River system, Greene Co., Tennessee). These attempts were finally successful, and there are now a total of 11 museum specimens. Brooks Burr and Jim Grady have conducted preliminary electrophoretic analyses and have concluded that this taxon is indeed unique. At present, however, the Chucky madtom is known only from a short reach of this one stream. Burr and Eisenhour recommended further status survey work; Burr and Grady are continuing their taxonomic work with this madtom. FWS has funded a continuation of the status survey by CFI, and the final report will be due in fall 1996.

In addition to the Chucky Madtom survey, FWS also funded status surveys on the Barrens topminnow, *Fundulus julisia*, and the Barrens darter, *Etheostoma forbesi*. Lisa Madison, at the Tennessee Cooperative Fisheries Research Unit of the NBS completed the report on the Barrens darter. She surveyed 67 sites on the Barrens Plateau of the eastern Highland Rim, and concluded that the Barrens darter is currently restricted to eight small streams in the upper Caney Fork system of the Cumberland River Drainage. There were several sites that contained hybrids between the Barrens darter and the fringed darter, *E. crossopterum*. Pat Rakes (CFI) completed the status survey of the Barrens topminnow. He surveyed 67 sites (also on the Barrens Plateau), and concluded that Barrens topminnows are currently restricted to one locality in the Elk River system of the Tennessee Drainage and three stream systems in the upper Caney Fork system. Although Pat concluded the species is apparently secure at present, it is extremely vulnerable to local extirpations. He concluded that the current status of the species is fair to poor, in comparison to Etnier's 1981-1983 status survey for that species. FWS has provided funding to CFI to survey additional localities for this species.

Ethelbert Jones, Bernard Kuhajda, and Rick Mayden (Univ. Alabama) were funded by the FWS to monitor historical populations of the Tuscumbia darter, *E. tuscumbia*, in the southern bend of the Tennessee River during 1993. They attempted to survey 13 localities (denied access to one and species extirpated from another), and concluded that populations at nine of the localities they surveyed were healthy and stable and habitat quality was good. Habitat at four localities was described as being degraded for various reasons, and populations of the species at these localities were either extirpated or reduced in abundance. They assigned each of the populations surveyed to Extirpated, Endangered, Threatened, Special Concern, or Stable categories and provided management recommendations. They also recommended a genetic study of the species to determine the amount of geographic genetic variation that may be present.

Rick Mayden and Bernard Kuhajda are also involved in a survey to determine the current status and population size of the Alabama cavefish, *Speoplatyrhinus poulsoni*. They have been successful in observing some Alabama cavefish, and also recently collected the first recorded syntopic specimen of the southern cavefish, *Typhlichthys subterraneus*, from this cave system.

Stewart McGregor and Thomas Shepard (Geological Survey of Alabama) continued their slackwater darter (*E. boschungi*) monitoring/survey work and surveyed 62 new localities for the species. As a result, they found the species at three new localities--all within the historical range of the species. This project was funded by the Alabama Dept. of Conservation and Natural Resources.

In our last year's report, we concluded that the futile attempts in 1993 to collect boulder darters from the Tennessee portion of the Elk River for the captive propagation project (conducted by Conservation Fisheries, Inc., or CFI) indicated that the species was present in very low numbers. Scott Mettee and Pat O'Neil (Alabama Geological Survey) provided data that indicated a higher relative abundance of this species in the lower portion of the Elk River. Therefore, CFI submitted an application for Fish & Wildlife Service (FWS) permit modification to allow collection from the Alabama portion of the Elk River. However, pending receipt of this modified permit, another attempt was made (check date) to look for boulder darters from the Tennessee portion of the Elk River. This labor-intensive collecting effort was partially successful, as three female boulder darters were taken. Several workers lifted, disturbed, and chased fishes into a small-mesh seine set immediately downstream and surrounding a large slabrock. Specifics of microhabitat where these individuals were collected were variable: current was moderate; depth from 25 cm to near 1 meter; cover type was large, flat slabrock to boulder; the consistent factor seemed to be the presence of a clean cavity beneath the cover rock.

National Biological Service (NBS) biologist Noel Burkhead and his Gainesville crew again attempted to locate slender chubs, *Erimystax cahni* at any historical localities in the Clinch/Powell systems in Tennessee and Virginia. Localities in the Powell River were thoroughly collected, but flooding and high water precluded their surveys in the Clinch. However, the negative data collected during this survey and during TVA's and UT's additional surveys in the Clinch River are not good indications about the current status of the slender chub.

Art Bogan was funded by FWS to review the literature and taxonomy of federal candidate aquatic snails and other endemic taxa in the Tennessee River basin. He and Malcolm Pierson have done similar reports for FWS on aquatic snails in the Coosa and Cahaba basins. These various reports are dated 1991-1993. FWS has provided funding for Art to compile a similar report on the remainder of the Ohio Basin.

The TVA River Action Teams (RAT's) have been busy collecting fish and benthic samples from their target watersheds (Hiwassee, Holston, Elk/Wheeler, and Clinch/Powell). An additional RAT has been designated for Nickajack/ Chickamauga Reservoirs and their tributaries, al- though this team hasn't performed any field reconnaissance yet.

Abrams Restoration Work -- A large cooperative effort to improve water quality in the Abrams Creek watershed is underway, involving the Park Service, UT, Trout Unlimited, TVA, Tennessee Office of Water Quality, CFI, etc. Much of the effort to date has been spent on determining baseline conditions (fish & invertebrate communities, water quality parameters), fencing to deny cattle access to the Creek in Cades Cove, and stabilizing banks. One impetus for this work was disappointment in our efforts to reintroduce smoky and yellowfin madtoms, spotfin chubs, and duskytail darters in the system. Since 1986 (when we began captive propagation and reintroduction of smoky and yellowfin madtoms) and 1993 (when captively propagated duskytail darters were first reintroduced into Abrams Creek) a total of 821 *Noturus baileyi*, 404 *N. flavipinnis*, 1328 *Cyprinella monacha,* and 136 *E. percnurum* has been stocked into lower Abrams Creek. Because of the decline of the Citico Creek yellowfin madtom population and the degraded habitats in Abrams Creek, no yellowfin madtoms were stocked there between 1989 and 1993. The situation in Citico Creek is apparently stable, and habitat in Abrams Creek appeared to be in better condition than in recent years, so in May 1994, 26 one-year-old yellowfin madtoms were released in Abrams Creek. As we have reported previously, smoky madtoms have been observed in Abrams Creek since June 1990, and during 1994 snorkel surveys at the transplant sites, four smoky madtoms and one yellowfin madtom were observed. The abundance indices for the smoky madtom calculated from the Abrams Creek survey data are comparable to those calculated for Citico Creek surveys, and they indicate a significant increase in survivorship of stocked individuals. The yellowfin madtom observed in Abrams Creek is the first transplanted individual ever observed there after stocking. The abundance index calculated for yellowfin madtoms in Abrams Creek is also comparable to that calculated for recent surveys in Citico Creek. Although reintroduced duskytail darters were observed in the transplant site in 1993, none was observed in Abrams Creek in 1994. One adult *Cyprinella monacha* was captured during a three-pass depletion population estimate in fall of 1993.

No yellowfin madtoms were observed in 1994 at the site in lower Citico Creek where 33 captively propagated yellowfin madtoms had been released in October 1993, but floods, high water, and swift currents made work very difficult throughout the 1994 spawning season.

Only a single, brief survey of the transplant locality of *Phoxinus cumberlandensis* in No Business Creek took place in 1994. No blackside dace were located during that survey. Ellis Laudermilk and Ron Cicerello of the Kentucky State Nature Preserves Commission are currently conducting a status survey for the species in Kentucky.

The attempt to induce spawning and rear offspring of bloodfin darters, *E. sanguifluum,* as surrogates for boulder darters, *E. wapiti*, was successful. Between 22 March and 17 April 1994 three separate spawns with a total of about 50-60 eggs were produced in CFI aquaria. Approximately 20 eggs were produced during a single spawning event. The eggs were 1.6 - 1.8 mm in diameter and were clumped together and wedged into crevices formed by a stack of unglazed ceramic tiles and the bottom of the aquarium. They were "glued" together by a thick gelatinous coating. The result of separate spawns were found together in one of the nests. The eggs hatched in about 14 days (water temperatures were maintained between 68 - 70 F). Of note is that apparently hatching times of eggs spawned earlier can be delayed to produce a more or less synchronous hatch with other eggs (spawned later) in the same nest. Males only casually guarded their nests. The hatchling bloodfin darters were between 8 and 9 mm TL with extremely thin bodies and elongate yolk sacs. All larvae were strongly pelagic and, although the length of time spent in this pelagic existence before transforming to their typical adult benthic lifestyle varied considerably, they remained so for at least five days. We hypothesize that bloodfin darter, and possibly boulder darter larvae, may drift in the current for some days before settling to the substrate to exhibit the benthic lifestyle of adults.

The spotfin chubs, *Cyprinella monacha*, that have been maintained in CFI aquaria since their capture in fall 1992 and summer 1993 did not exhibit signs of being sexually mature until summer 1994. The captive spotfin chubs spawned in the aquarium between 13 July and 13 September. Eggs were 1.8 - 2.0 mm in diameter and were cemented into crevices between flat rocks. Every few days more eggs could be found in these crevices, and the resultant "nests" could contain eggs in several developmental stages. There was no parental care of the eggs, with the exception of the territorial behavior of the males during the actual spawning acts. The eggs hatched in about a week (with water temperatures of 76 F), and larvae were benthic rather than pelagic. They remained benthic for several weeks post hatching. A total of about 2300 spotfin young juveniles was reared from these captive spawnings, and

700 individuals were reintroduced into Abrams Creek on 17 November 1994.

The success of the lake sturgeon *(Acipenser fulvescens)* reintroduction attempt in the lower Clinch River is still unclear. No specimens have been observed there since the initial stocking.

WBIR TV in Knoxville produced a 30-minute video on the Little River, considering its rich biota, siltation problems, etc. It won an EMMY award for documentaries of this type.

There are now two ichthyologists active in the Chattanooga area. George Benz of the Tennessee Aquarium has been teaching ichthyology at UT-Chattanooga, and Mark Schorr has joined the staff of that university and is in the process of developing a research collection of fishes there.

Questions concerning validity of records of *Rhinichthys cataractae* from the Cumberland River drainage have been put to rest. USNM 230824(4), 5 Oct 1968 and USNM 23107(17), 9 Nov 1968, are both from Dry Creek, a tributary to Smith Fork of the Caney Fork River system, collected by Ray Bouchard and Wayne Starnes. CU 47841(1) is from Elk Creek, Stewart County, Tennessee (this is downstream nearly to KY), 5 Nov 1964. We looked at the entire species list and some of the specimens for that site; nothing was out of order. Larry Page has added that INHS 86432 (1892) and INHS 84234 (1873) represent valid records of *R. cataractae* from southern Illinois. Work funded by Georgia DOT through Weston Inc., (Jerry Dinkins) resulted in significant collections of Georgia fishes: *Percina antesella* from Shoal Creek where the first specimens of this species were collected by Don Scott; *Fundulus catenatus* from West Chickamauga and Lookout creeks; and *Notropis ariommus* from South Chickamauga and West Chickamauga creeks.

New federal listings include: *Etheostoma etowahae*, Etowah darter (LE 12-94); *E. (Ulocentra)* sp., Cherokee darter (LT 12-94); *Athearnia anthonyi*, Anthony's riversnail (LE 4-94); *Pyrgulopsis ogmorhaphe*, royal snail (LE 4-94); *Alasmidonta raveneliana*, Appalachian elktoe (LE 11-94). Proposed federal listings include: five more Tennessee and Cumberland mussels (all proposed Endangered) and 11 from the Gulf coastal drainages (some proposed Threatened and some Endangered).

FWS has a new list of federal candidate species (with several southeastern fishes new to the list): 50 CFR Part 17, Endangered and threatened wildlife and plants; animal candidate review for listing as endangered or threatened species; proposed rule. Tuesday, November 15, 1994. Federal Register: 58982-59028.

New Recovery plans: Final duskytail darter recovery plan (March 1994, Asheville Field Office of FWS); Agency/draft recovery plan for relict darter (comments were due on this by 20 February 1995 to Asheville); Agency Draft recovery plan for blue shiner (May 1994 from Jackson Field Office of FWS); Agency/draft recovery plan for royal snail (comments due to Asheville by March 1995); Mobile River Basin Aquatic Ecosystem recovery plan (Oct. 1994, Jackson).

P. Shute and D. Etnier

REGION IV - South-Central

Hank Bart at Tulane University reports that the description of the upland goldline darter is progressing, as is his long-term study on factors affecting fish diversity. He and Dr. Suttkus are continuing to collect data on carp and buffalo suckers. Hank expressed his concern over the lack of progress in hiring a curator for the Auburn University fish collection.

Melvin Warren with the U.S. Forest Service Hydrology Lab in Oxford, Mississippi, continues to work on fish and mussel community structure in the Sipsey Fork of the Black Warrior River, and has added Shoal Creek in the Coosa River drainage to the study. He has organized and is chairing a symposium at the American Fisheries Society Tampa meetings on changes in fish communities inferred from long-term and large-scale fish data sets in the southeastern United States, co-sponsored by the AFS endangered species committee and SFC. Lastly, Henry Robison is working with Melvin and Bill Matthews on getting the data base from the Fishes of Arkansas book into a GIS compatible format.

Steve Ross at the University of Southern Mississippi is still working on the state fish book for Mississippi, and plans on producing a first draft this year. He has completed a survey of disjunct populations of *Phoxinus erythrogaster*, and will soon submit a manuscript to the Proceedings. His graduate students are working on projects dealing with use of floodplains by fishes, the costs and benefits of using these habitats, habitat use of *Menidia clarkhubbsi* on a barrier island, and the life history and reproductive strategy of *Pteronotropis signipinnis*.

Carol Johnston of the U.S. Forest Service Hydrology Lab in Oxford, Mississippi, has finished a study on the life history of *Etheostoma raneyi*, and is working up the data on *Pteronotropis welaka* ecology with Charles Knight. She and a student are initiating a study on movement and home ranges of fishes in the Ouachita Highlands. Carol is also working on the population dynamics of rare fishes in the Conasauga River, Coosa River Drainage, along with Conservation Fishes, Inc.

Geological Survey of Alabama biologists finished and will soon publish a four-year biological and water quality study of the upper Cahaba River; over nutrification and nonpoint pollutants are affecting the river's biodiversity. Tom Shepard finished a status survey of *Notropis cahabae* and found them to exist from Centreville to Piper Bridge in Bibb Co., Alabama, with the stronghold still at Riverbend; the results are published in GSA Circular 181. Stuart McGregor completed the final year of a status survey of *Etheostoma boschungi* and will soon publish the results in GSA Circular 184; he found the species using its known spawning sites, discovered additional spawning sites, and is describing a different type of breeding habitat. Scott Mettee and Pat O'Neil continue work on *Alosa alabamae*, which include studies on age and growth, sexual dimorphism, and spawning. Field efforts in 1995 include completion of *Alosa alabamae* sampling, initiation of fish and mussel surveys in the Tennessee River drainage, and status surveys of *Cyprinella callitaenia* and *Noturus munitus*.

Randy Haddock from the Cahaba River Society in Birmingham reports that the Society is continuing to promote greenways as buffer zones in metropolitan areas. It has helped establish the Alabama State Rivers Coalition, a group of conservation organizations promoting protection of rivers in the state, and the Society has produced an educational package about the Cahaba River for grade-school students.

Malcolm Pierson of Alabama Power continues to work on aquatic gastropods throughout the state of Alabama.

Bob Stiles at Samford University in Birmingham has noticed extensive clear-cutting in the Weogufka Creek watershed, Coosa River drainage. This is one of the few places in Alabama where *Cyprinella caerulea* is still extant, and he is concerned about the possible impact clear-cutting may have on this population.

Mary Freeman at Auburn University has a draft finished on the description of the Halloween darter, a species located in the Apalachicola River drainage. She has also undertaken a detailed habitat analysis study of the Tallapoosa River, and is still involved in the tri-state water use study which ultimately will result in habitat modeling for the region.

Carl Couret from the U.S. Fish and Wildlife Service office in Daphne, Alabama, has been studying tailwater fisheries protection and enhancement below several of the hydroelectric dams in Alabama, and he is involved in GIS system development projects.

Frank Parauka at the Service's office in Panama City, Florida, searched for, but did not locate, the Alabama sturgeon last summer and fall, and plans to continue the hunt this spring. Twenty-five gulf sturgeon, mostly subadults, were radio-tagged and released in the Choctawhatchee River last year. A few individuals moved upstream, one as far as Geneva, Alabama, but most stayed in the same area, even after last years flood. He plans to tag adults and to profile habitats on the river this year. Genetic studies of several gulf sturgeon populations from the Pearl to the Suwannee River indicate that several of these populations appear to be distinct.

Bud Freeman at University of Georgia is conducting a survey for Halloween darters and is studying the spawning behavior of *Percina antesella*. He is also identifying critical threats to the Conasauga and Etowah river systems.

Chuck Lydeard at the University of Alabama is continuing his studies on the molecular systematics and conservation genetics of freshwater snails and mussels of the southeast. Herb Boschung continues to work on a state fish book for Alabama along with Rick Mayden. Rick is also conducting survey and status studies of *Etheostoma ditrema*, *E. chermocki*, and *Speoplatyrhinus poulsoni*, as well as surveying the aquatic fauna of the Sipsey River (Tombigbee River drainage) in Fayette Co., Alabama. He is also continuing a study on the effects of malathion on an upper Tombigbee River tributary.

Bernie Kuhajda

REGION V - Northwest

Henry Robison and Bruce Thompson continue to work on the description of the longnose darter form in the Ouachita River system. Robison hopes for completion of the description and submittal of manuscript in 1995.

Henry Robison is conducting a status survey of *Notropis ozarcanus* in the Arkansas portion of its range for the U.S. Fish and Wildlife Service. Bill Pflieger is doing the same for the Missouri portion. Robison's report is due in 1995.

Jim Johnson and students continue their work with *Amblyopsis rosae* in the Logan Cave system in northwest Arkansas. Their mark and recapture work has yielded population estimates three times larger than previous estimates based on visual observation. They have found the Ozark cavefish to be very mobile, moving up to a kilometer in six months. The cavefish prefer pool habitats, and over 80% of their captures have come from major pools within the system. They have observed large scale migration into and out of Logan Cave with total replacement of the population occurring within a year. Also, Jim reports there has been a major ceiling collapse near the entrance of Cave Springs Cave which was previously thought to have the largest number of Ozark cavefish.

A major threat to water quality of Logan Cave is apparently going to be constructed in the form of the Northwest Arkansas Regional Airport. An Environmental Impact Statement has been completed and land acquisition for the project is underway. The proposed airport location is on top of the recharge area for Logan Cave, and the potential for water quality degradation from stormwater runoff and associated petroleum hydrocarbon contamination are of great concern.

Mercury contamination in higher trophic-level fishes continues to be an issue in Arkansas and Louisiana. A Mercury Task Force with funding from EPA, the Arkansas Department of Pollution Control and Ecology, and the Arkansas Game and Fish Commission was established in 1994 with a funded chairman and funds for sampling, testing and analysis of sources. Final reports are due soon. Mercury advisories continue to be in effect in south Arkansas, and additional lakes and streams in western and central Arkansas have been found with high fish flesh mercury levels.

Bill Pflieger is working on the second edition of the Missouri Fishes book. A three year re-survey project is in the works by Missouri Department of Conservation biologists with completion due in 1997. The second edition will be published sometime after that.

Kim Graham, Missouri Department of Conservation, has a graduate student performing status surveys for the sturgeon and sicklefin chubs.

The Mississippi Interstate Cooperative Resource Association (MICRA) has received a $200,000 Federal Grant to tag and study paddlefish movements in the 17-state region. MICRA hopes the study will allow for integration of good paddlefish management into long range water regulation/ allocation plans for the MICRA states.

The Corps of Engineers is re-drafting its water regulation plan for the Missouri River basin. Kim Graham reports Missouri Department of Conservation is pushing for a more natural hydrography in the plan that will allow for spring peaks, summer lows, and a fall rise. Return to a more natural hydrography should benefit some of the imperiled big river fishes of the basin.

There is good news on the stream modification front. A proposed public water supply impoundment project for the North Fork Saline River, a significant portion of *Noturus lachneri* range, has been abandoned. Opposition from the U.S. Fish and Wildlife Service, the Arkansas Game and Fish Commission, and grass roots citizens groups persuaded the Arkansas Department of Pollution Control and Ecology to uphold a protected stream designation. An alternative project to impound a North Fork Saline River tributary (Dog Creek) is in the developmental stages. Also, Arkansas Game and Fish Commission plans to impound Sullivan Creek (White River drainage) to create a public fishing lake have been abandoned due to public opposition and Corps of Engineers insistence that an Environmental Impact Statement be prepared.

There is bad news on the stream modification front. Business interests and citizens groups are promoting additional development of commercial shipping on the White River upstream to at least Newport, Arkansas. Currently, the Corps of Engineers maintains a 100-foot wide, nine foot deep navigation channel. Proponents of additional improvements are pushing the concept of a 200-foot wide navigation channel. In some upstream areas, this would encompass almost full channel width. This may be an issue that we request the SFC get involved with as it develops.

Also on the White River, there is a plan in the developmental stages to remove water from the river during high stages for storage and use in irrigation. Eastern Arkansas has experienced chronic groundwater level depletion over the last 20 years due to irrigation, and this project is sought by the agricultural community as a solution. The Arkansas Game and Fish Commission has worked to assure that water is removed only during highwater stages and minimum stream flow standards are maintained. Implications of this project are complicated by the recent discovery of the exotic zebra mussel (*Dreissena polymorpha*) in the White River.

The Arkansas Legislature is wrangling over a bill to prohibit instream gravel mining in 24 high quality Arkansas streams. These streams have been designated as extraordinary resource waters and include many of the Ozarks least disturbed water bodies. The bill was approved by the Senate on 1 March and now moves to the House. Opposition to the bill is intense and debate continues as of this writing.

The zebra mussel was found in the Arkansas River in 1992 and occurs throughout that river's mainstem in Arkansas. The zebra mussel was found in the White River at Clarendon, Arkansas in 1994 at a barge docking facility. Arkansas Game and Fish Commission biologists and a state Zebra Mussel Task Force are monitoring population levels and range expansion.

John L. Harris

REGION VI - Southwest

Neil Douglas and his students are primarily working in Mississippi, but one of his students, M'Lee Loe, has completed a study on the effect of group size and underwater structure on velocity preference on *Lepomis gulosus*. Frank Pezold has several graduate students working on freshwater fish projects. Lisa Loe is examining larval fish distributions in relation to a Little Blue Heron rookery in a swamp along Red Chute Bayou. Steve Dupre' is studying habitat associations of riffle-inhabiting darters in Trout Creek (Little River, LA drainage). Luzette Kincaid is analyzing physical habitat classification as applied to Ouachita Mountain headwater stream systems and species/physical parameter associations in those streams. Frank is working on a USFWS project focusing on seasonal and ontogenetic exploitation by fishes of a managed wetland. Work is also continuing on diet selectivity by darter species in Trout Creek.

Hank Bart is continuing his revisionary work on the ictiobine suckers with Royal Suttkus. Hank is also taking part in a DOE study of aquatic contaminants in lower Mississippi River floodplain swamps. The project is focused on the transport of toxins through the swamps and Hank is looking at the effects of the contaminants on floodplain fish communities.

In Texas, Kirk Winemiller and others at Texas A&M have been studying the Brazos River oxbow lake ecosystems for two years. The research has several foci, including the relationship between landscape features and biodiversity within the watershed and the relationship between life-history strategies, food-web structure and recruitment. For species like largemouth bass, the oxbows are species-sources and the river primarily a conduit for dispersal. A student of Kirk's, Allison Anderson, has been studying the role of life-history in determining fish assemblage response to flood control structures of the San Gabriel River. Allison, Kirk, Robert Edwards (Univ. Texas-Pan American) and Clark Hubbs have just completed a study of historical changes in the Texas freshwater fish fauna spanning a 30+ year period. Loren Moriarty, also at A&M, has studied fish assemblage/habitat relationships in Village Creek, a blackwater stream in the Roy Larson Sandylands Sanctuary (TNC) in the Neches drainage.

Major Texas Parks and Wildlife projects in eastern Texas have involved the reestablishment of paddlefish throughout their historic range and an attempt to counteract hybridization of introduced smallmouth bass with the Guadeloupe bass. Starting with Johnson Creek (Guadeloupe River drainage) and the Blanco River, the Department is trying to wash out the smallmouth genes by overwhelming local breeding populations (typified by hybrid swarms) with a massive restocking of genetically-certified Guadeloupe bass lab-reared from natural stock. Another Texas note, *Notropis girardi*, the Arkansas River shiner, only occurs over 10-20% of its natural range. Although there have been studies by Oklahoma researchers documenting the problem, apparently there is no favor to be found with Texas legislators for pursuing a solution.

F. Pezold

ANNOUNCEMENT

An invited symposium, jointly sponsored by the SFC and the Endangered Species Committee of the American Fisheries Society (AFS), has been approved for the 125th Annual Meeting of AFS, 28 Aug-1 Sep, in Tampa, FL. The day-long symposium is entitled "Imperiled Fishes and Aquatic Communities Across the Southern Landscape: Spatiotemporal Data Bases for the 21st Century." The impetus for the symposium is to highlight the application of long-term or large-scale aquatic data sets and present creative approaches to illuminating factors at multiple spatial and temporal scales that interact to affect species diversity, ecological function of aquatic communities, and habitat in southeastern running waters. Specific objectives are to: (1) availability and potential applications of existing data, including contemporary systematics, historical ecology, GIS methods; (2) enhance communication between resource agencies and researchers concerning creation, maintenance, and use of large data bases for endangered fishes and other aquatic fauna; and (3) focus on realized and potential problems attendant to the future of the southeastern aquatic fauna and germinate coordinated efforts at using the data in hand for betterment of the resource. Twelve invited papers are scheduled for the symposium as follows:

Robert C. Cashner[1] and Brooks M. Burr[2]. ([1]Dept. Biological Sciences, Univ. of New Orleans and [2]Dept. Zoology, Southern Illinois Univ.). Status of Fish Collections in the South: Their Value and Uses as Documentation Centers of Diversity.

Richard L. Mayden (Dept. Biology, Univ. of Alabama). Biodiversity and Conservation of Fishes in the South: Lessons from Historical Ecology.

Stephen T. Ross (Dept. Biology, Univ. of Southern Mississippi). A GIS Database of Mississippi Fishes: Approach, Problems, and Application to Conservation Issues.

Frank Pezold, Steven George, Robyn Jordan, Christopher Metcalf, and Neil Douglas (Dept. Zoology, Northeast Louisiana University). Dusting off the Jars: Using Museum Collections in Studies of Fish Ecology and Fisheries Management.

Paul Angermeier and Matthew R. Winston (Va. Coop. Fish and Wildlife Research Unit, National Biological Survey, Virginia Tech). Ecology and Taxonomic Approaches to Recognizing the Diversity of Fish Assemblages in Virginia.

Allison Anderson[1], Clark Hubbs[2], Kirk Winemiller[1], and Robert Edwards [3] ([1]Dept. Fish and Wildlife Science, Texas A&M Univ., [2]Dept. Zoology, Univ. of Texas, and [3]Dept. Biology, Univ. of Texas - Pan American). Texas Freshwater Fish Assemblages Following Three Decades of Environmental Change.

William J. Matthews[1], Henry W. Robinson[2], and Edie Marsh[3] (Univ. of Oklahoma Biological Station, [2]Biology Dept., Southern Arkansas Univ., and [3]Dept. Biology, Angelo State Univ.) Stream Fish Assemblages in Arkansas Uplands: Quantifying Variance in Space and Time by Use of Historical Collections.

Noel Burkhead and Stephen Walsh (Southeastern Biological Science Center, National Biological Survey). Correlates of Demise: Case of the Southern Appalachian Fish Fauna.

Joseph P. Buckley and Henry L. Bart (Museum of Natural History, Tulane Univ.). Navigation Related Changes in Alabama River Fish Communities Over a 20-Year Interval.

Christopher A. Walser and Henry L. Bart (Museum of Natural History, Tulane Univ.). Fish Community Structure and Land Use in Watersheds of the Chattahoochee River System: Historical and Present-Day Assessment.

Noel F. Ocampo, Jayne Brim-Box, James D. Williams, and Ricardo C. Lattimore (Southeastern Biological Science Center, National Biological Survey). Use of Historic Freshwater Mussel Data in the Management of Aquatic Resources of the Apalachicola River Basin.

Leo G. Nico (Southeastern Biological Science Center, National Biological Survey). Tracking Introduced Fishes in the Southeastern United States.

We urge the SFC membership to attend the AFS meeting in support of the co-sponsored symposium and to build awareness of SFC purpose, goals, and activities with our AFS colleagues. For more information contact the symposium organizer and chair, Mel Warren, at Southern Research Station, USDA Forest Service, Forest Hydrology Lab, P.O. Box 947, 1000 Front St., Oxford, MS 38655; 601/234-2744; Fax 234-8318; FSWARREN@VM.CC.OLEMISS.EDU.

Southeastern Fishes Council
PROCEEDINGS

Information For Contributors

The primary purpose of the PROCEEDINGS is to publish research papers, critical reviews of activities, area reports and other pertinent information pertaining to the biology and conservation of Southeastern fishes

Manuscripts should be submitted in duplicate. A good guide for manuscript preparation is the Fifth Edition of the *CBE Style Manual* available form the Council of Biology Editors, One Illinois Center, Suite 200, 111 East Wacker Drive, Chicago, IL 60601-4298.

The entire manuscript including the abstract (required for feature articles only), text, Literature Cited, tables, headings and legends must be double-spaced. The title, author's name and author's address should be centered on the first page. Indicate a suggested running head of less than ten words at the bottom of the first page. An abstract (if necessary) will be placed at the beginning of the text. Acknowledgements will be cited in the text immediately before the Literature Cited. All references cited in the paper will follow the standard format of using the last name of the author(s) followed by the year of publication of the paper. In the Literature Cited, the references will be alphabetical by the author's last name and chronological under a single authorship. The entire reference should be given with the complete name of the journal spelled out if possible.

Tables should be typed on a separate page, consecutively numbered and should have a short descriptive heading. Figures (to include maps, graphs, charts, drawings and photographs) should be consecutively numbered and if grouped as one figure each part block lettered in the lower left corner. In general, high quality prints or photocopies are preferred to the original line art. Legends for figures must be on a separate sheet and each figure must be identified on the back. The desired location of each table or figure should be indicated in the margin of the manuscript.

Manuscripts will subject to editing and will be reviewed by at least two anonymous persons knowledgeable in the subject matter. The edited manuscript and page proofs ("galley") will be furnished to the author. Upon returning the reviewed and corrected manuscript to the editor, a PC disk copy of the final form is also requested. Specific formatting information for the disk will be sent to the author with the edited manuscript. Reprints will be available at a nominal cost.

Regional reports, new notes and other short communications will also be edited and included when possible in the next number.

Only manuscripts from members of The Southeastern Fishes Council will be considered for publication. There is no charge for publishing in the PROCEEDINGS. All manuscripts and short communications should be sent to the editor:

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