Minutes of the AFS Southern Division Trout Committee Meeting
May 23-24, 2006
Gaston's Resort, Arkansas

The 2006 meeting of the American Fisheries Society – Southern Division Trout Committee was called to order at 8:30 AM by Matt Kulp, Chair. A quorum of 10 members was present.

Old Business

Matt Kulp distributed the 2005 meeting minutes. Jim Habera made a motion for approval which was seconded by Doug Besler, and the minutes were approved by the membership.

Frank Fiss gave a report on the SDAFS meeting held in San Antonio, Texas. A discussion about a proposed symposium on 2-story lake fisheries followed. There is not much information available yet, but the symposium will have invited papers on various issued concerning 2-story fisheries.

Darrell Bowman gave the Treasurer's report. A new account with Bank of America has been opened. Since the last Treasurer's report, a check to AFS for the publication of the Southern Appalachian Brook Trout paper was written. Also, Jack van Deventer was reimbursed for attending the recent SDAFS meeting to discuss Microfish 3.0. Current balance is $4663 and about $1100 will be needed for the 2006 committee meetng. Mike Kruse made a motion to accept the Treasurer's report and was seconded by Frank Fiss. The motion passed unanimously.

Jim Habera discussed the electrofishing gear study to be conducted August 8-10, 2006. Anyone who would like to participate is welcome and should contact Jim. University of Tennessee researchers have reviewed other studies concerning comparisons of various types of electrofishing gear.

Matt Kulp gave an update on Microfish 3.0. Jack van Deventer has the program available now for distribution, The program can be used for tailwater, reservoir and stream studies using Excel spreadsheets. The next phase of the program should be available for a fee, sometime early in 2007.

Matt Kulp discussed the status of the Aqui-S INAD. Currently, there is a 30-day withdrawal period. Bonnie Johnson has sufficient hatchery information, but still needs field data. Because of the 30-day withdrawal period, some studies are only using sub-legal size trout to avoid problems.

Doug Besler provided an overview of the Eastern Brook Trout Joint Venture. A grant to fund the EBTJV, originally with the AFWA is running out. New Hampshire has agreed to 'house' the next grant. The Status and Threats Assessment will have the TU logo removed. It is hoped to generate funds from Congress to support EBTJV projects.

By this fall, each state should have their own conservation strategy to complement the principals of the regional strategy.

Archives: Matt Kulp met with John Boaze and received a large folder containing minutes of previous meetings. There are only about one-half dozen meeting minutes missing from 1979 through 2005. Dan Rankin also said he has a large file of minutes. Jim Habera volunteered to become the 'keeper' of the archives.

New Business:

Steve Reeser gave a brief summary of the East Coast Trout Management and Culture Workshop IV, held June 6-8, 2005 at Lock Haven State University, PA. Over 140 attended the workshop. Steve Reeser still has a few copies of the abstracts, which were paid for by the USFWS. Fish Pro made contributions for the socials. The Trout Committee should make $2000-$3000 on the workshop. The Committee expressed their gratitude to Steve, Larry Mohn and George Duckwall for all of their work in organizing the workshop.

Website: Matt Kulp has spoken with Ray Morgan about the Committee's website updates. Ray said a graduate student would update the website with any information the Committee wants to place on it.

Dougl Besler discussed the future of brook trout restoration in the southeast, such as removal of fish with antimycin and restoring fish populations into streams that are fishless. Doug posed several questions about restoration, such as: do we need to document/standardize how it is done(how many and when to stock a stream)? Is there a need to monitor the stream after reclamation and reintroduction of trout? What worked – what didn't? Long-term and short-term success? Is what was done in one state, applicable in another state? Why was the reclamation/ restoration done, and was it successful? Was it done because of invasives or was it fishless? Doug agreed to take the lead on developing a table to document various restoration projects. Doug also announced that Steve Moore will be conducting an antimycin project on 8 or 9 miles in 2008 or 2009.

Didymo Update: Darrell Bowman attended a didymo conference and handed out some abstracts. Didymo is an invasive diatom that can live 8-9 days on damp felt soles. It is present in the White River. There was a massive bloom in the spring of 2005 after several months of high electric generation. Appears to be causing some problems in wild trout fisheries. There is nothing to control or eradicate didymo once it is in a river. Little is known about it, but it seems to be showing up primarily in trout waters, and appears to be associated with dams. TN and VA has reported the presence of didymo. Does not seem to significantly impact the fisheries, but does impact people's perception of the problem (people can't fish, don't like the looks of it, etc.). Could potentially be a problem in hatcheries. A long discussion ensued concerning didymo. There are a lot of unknowns associated with this invasive.

Frank Fiss said there is an on-going mitigation project for tailwaters in TN. He asked if anybody has any economic data on tailwaters, to please send it to him.

2007 TC meeting: Dan Rankin had volunteered in 2005 for SC to host the meeting at Devils Fork State Parik. A discussion followed about when to hold the meeting. Missouri, VA and NC volunteered to hosy the meeting as backups if SC could not.

Nominations and Election of new TC officers: Darrell Bowan will remain treasurer for another 2 years. Steve Reeser nominated and Darrell Bowman seconded Dave Dreves for Chair-elect. The motion passed unanimously.

Roundtable Discussion-2006

GA-Lee Keefer

In 2005 an ANC sampling program on brook trout streams was started as a cooperative venture between Georgia WRD, Trout Unlimited (TU), USFS and North Georgia Technical College. To date 44 samples from 40 streams have been collected and analyzed. In the 44 samples, pH ranged from 5.95 to 6.84, and ANC ranged from 15.4 ueq/l to 99.9 ueq/l. A total of 7 samples had ANC values of 20ueq/l or less. Additional sampling is scheduled for 2006 and 2007.

Additional results from brook trout DNA samples were received from Auburn U., raising the total of known southern Appalachian brook trout populations in Georgia to 25. Brook trout DNA samples have been collected from 79 streams to date. Additional collections are planned for 2006.

The brook trout was designated as the official state coldwater fish by the Georgia legislature during the 2005-2006 session. TU and the Georgia Wildlife Federation sponsored the bill.

The experimental “Big Fish” program continued during 2005 and 2006, where approximately 6% of stocked fish in selected streams were 12” or larger (normal stockers are 9”). Angler acceptance appears to be high, even though fish numbers are lower overall. The program will be evaluated at the end of the 2006 stocking season to determine if the program should be continued.

Biologist Chris Martin is investigating the occurrence of natural brown trout reproduction in the Lake Lanier tailwater. Spring and fall electrofishing surveys are conducted to look for YOY brown trout. We have stopped stocking brown trout in this river since the natural reproduction was discovered. Chris is interested in discussing his project with anyone doing similar work.

The Chattooga River is the scene of a dispute over whitewater boating. When the river was designated a Wild and Scenic River, the river was zoned so that no boating of any kind was allowed above highway 28. Since that time, most fisheries management activities (stocking, surveys, fish sampling, etc) has taken place above highway 28. Very heavy boating use, including private boats and commercial rafts now occurs below highway 28. When a new Forest Plan was approved continuing the boating ban, American White Water (AWW) appealed the decision and the USFS Washington office directed the Sumter NF to reexamine the issue. The Sumter NF began a process of public and stakeholder input and developed a plan to collect the data needed to resolve the issue, including boating trials to evaluate interactions between boaters and other user groups. The latest development is that AWW has pulled out of the process and is suing the Forest Service to open the area to unrestricted boating immediately.

Our two highly managed streams, Waters Creek and Dukes Creek continue to produce blue ribbon angling. Otter predation has not been an issue for the past few years, just why remains a mystery. Both streams contain good numbers of fish in excess of 20".

KY-Dave Dreves
Changes to Trout Program in 2006

Big Bone Creek in Boone County and Clear Creek in Bell County were added to the seasonal catch and release program (All trout caught from October 1 through March 31 must be released and only artificial baits may be used). Big Bone Creek is a warm water stream near urban northern Kentucky (Greater Cincinnati) that can only support a trout fishery during the coolest months of the year.

Special regulations for trout were implemented on a 2.3 mi. stretch of Chimney Top Creek and 1.0 mi. stretch of Right Fork Chimney Top Creek (Wolfe Co.). There is now a 16 in. minimum size limit with a 1 fish daily creel limit and only artificial lures may be used. The regulations apply year round. There will be one unannounced stocking of 450 brown trout each spring.

All trout stockings on the Cumberland tailwater are no longer announced.

In 2005, the KDFWR hired an urban fisheries biologist whose job responsibilities are to increase urban fishing opportunities and evaluate methods. The KDFWR has begun stocking 5 urban lakes (3-7 acres) with trout and other warmwater species for put and take fisheries. These test lakes will serve to determine the feasibility of expanding the program to other urban areas around Kentucky. Trout will be stocked at a rate of 400 per acre once in early spring and again each fall. The warmwater fish (catfish, bass, and sunfish) will be stocked in the beginning of May, June, and July.

Research
Cumberland Tailwater

We are continuing our evaluation of the brown trout fishery in the tailwater by marking this year's stocking of 8 in. with a left pectoral fin clip. We are also continuing research to evaluate the effects of the 15-20 in protective slot limit regulations for rainbow trout implemented in 2004. In contrast to the previous 2 years, 2005 was a drought year in Kentucky resulting in adequate water quality throughout the year. As expected, our fall electrofishing catch rates of both brown and rainbow trout rebounded back near the levels observed in the early 2000's. These results will be presented at this meeting during the tailwater mini-symposium.

Beginning in July 2005, we initiated an 18-month biotelemetry study (encompassing two critical periods of July-October) to observe how trout respond to changing water quality and flow conditions in the Cumberland tailwater. We contracted with Dr. Sherry Harrel of Eastern Kentucky University to conduct the study. It was decided to employ sonic telemetry. Using a surgical technique modified from Siegwarth and Pitlo (1999), 30 rainbows and 30 browns in the 15-20 in size range were implanted with transmitters, as regulations on the tailwater protect this size class from harvest for both species. A graduate student tracked fish weekly during the critical period of July to early November and monthly otherwise. Over the last decade our typical study area is the upper 37 miles of the 75 miles of trout water, where the vast majority of the fishing pressure occurs. The fish used in this telemetry study were captured and released in this section. The lower section of river is being monitored for telemetry fish with 3 submersible logging type receivers spaced out over the 38 miles. The research plan has the graduate student tracking fish in this upper section and routinely checking the submersible receivers to monitor trout movement downstream out of the area. If there should be a good percentage of fish move out of the upper section then manual tracking will be shifted accordingly.

After preliminary analysis of last year's data we find no relationship between range of movement and water temperature, D.O. or discharge. This is not surprising since water quality was never compromised. The calculated mean home range is nearly 7 river miles for each species, however we expect this figure to be reduced as it is probable we are including the drift of some deceased fish in the calculation. The research is still ongoing and complete results will be presented at a later date.

New in 2007

Later this year, we will undertake the task of creating a statewide trout management plan.

WV-Mike Singleton

WV is currently working on a brook trout conservation strategy in support of the EBTJV. DNR, FS, WVU and NGOs have been involved in the process.
Spring Run Hatchery will get a 3M makeover in the next year. Work includes an effluent treatment system to bring the hatchery into compliance with its NPDES permit requirements and replacement of old concrete ponds with concrete raceways.

WV is currently treating approximately 342 miles of streams through direct application of limestone sand or by limestone drums. About 80% of the treated stream miles directly benefit brook trout.
WV DEP will be submitting legislative rules for implementation of antidegradation procedures(which lists reproducing trout streams), and for water quality standards(which lists streams supporting trout year round). Opposition from manufacturing, farming, forestry and extractive industry interests is expected(guaranteed) to be fierce.

NC-Doug Besler

Brook Trout Distribution & Genetics

The NCWRC will increase sampling efforts to determine the complete distribution of brook trout in North Carolina by 2010. The primary focus of this sampling will be to complete brook trout distribution on private lands. When populations of brook trout are located, tissue samples will be collected and stored in an ultra-cold freezer located at the Marion State Fish Hatchery. Once enough samples are accumulated, a university lab will be contracted for genetic analysis. A secondary objective of the sampling is to continue mapping the distribution of all wild trout in North Carolina and incorporate that information into a GIS data layer.

Electrofishing Efficiency

The NCWRC will conduct a short-term study in the summer of 2006 to examine the efficiency of backpack electrofishing for trout population estimation in NC. Some recent studies conducted in the western United States indicated that multiple-pass backpack electrofishing sampling might not be accurately representing true population abundance (Peterson et al. 2004). The objective is to replicate the Peterson et al. study using existing NCWRC backpack electrofishing gear at locations historically sampled by the NCWRC.

Peterson, J. T., R. F. Thurow, and J. W. Guzevich. 2004. An evaluation of multipass electrofishing for estimating the abundance of stream-dwelling salmonids. Transactions of the American Fisheries Society 133:462-475.

Causative Factors for Loss of Wild Trout Populations

A cooperative research project will be initiated in 2006 with North Carolina State University that will examine causative factors for the loss of wild trout populations on private lands in North Carolina. This study will use GIS to examine differences or changes in land use patterns at locations where wild trout populations still persist and at locations where wild trout populations have become locally extirpated. An effort will be made to focus on wild brook trout populations.

Trout Angler Opinion Survey

The NCWRC will be contracting an angler opinion survey in 2006. This survey will provide information on the attitudes, opinions, and preferences of North Carolina trout

anglers. Information from this survey will be used by the NCWRC in revising its trout management plan as well as making trout regulation changes.

Triploid Trout
The NCWRC has been conducting in-house research since 2005 to produce triploid brown trout and brook trout (triploid rainbow trout are already commercially available). The NCWRC is looking at alternatives to stocking diploid trout to protect the remaining populations of wild brook trout in North Carolina. The NCWRC is currently using hydraulic pressure to induce triploidy which has resulted in a very high rate of triploidy. The NCWRC has also contracted with North Carolina State University to begin research on producing a viable line of tetraploid brook trout. No decisions have been made by the NCWRC relative to how extensive triploid trout will be used in its stocked catchable trout program

MO-Mike Kruse
Hatchery Renovations –

Work continues on renovation of the Department of Conservation's coldwater hatchery system. Three main Priority 1 projects identified in the FishPro study of 2004 are underway:

1.) *Renovation of Shepherd of the Hills Hatchery* – work is ongoing for improvements to the raceway complexes and installation of a liquid oxygen system.
2.) *Roaring River Hatchery* – Improvements to the hatchery water supply line have been made and installation of a liquid oxygen system is ongoing.
3.) *Montauk Hatchery* – An emergency recirculation system has been installed and improvements to the emergency power system and installation of a liquid oxygen system are ongoing.

Priority 1 projects are designed to enhance system capabilities for achieving two main goals of the Plan for Missouri Trout Fishing: 1)an increase of 20% in the number of trout available for stocking statewide and 2) an increase in the average size of rainbow trout stocked to 12.5".

New Management Efforts—

Maramec Spring – One of Missouri's four trout parks, Maramec Spring Park was opened to daily catch and release fishing this past winter. Historically, catch and release fishing has been permitted only on Fridays, Saturdays and Sundays in the trout parks. No problems were encountered with the daily catch and release fishing and the effort will likely continue at Maramec. A small number of trout were stocked throughout the winter to enhance catch rates. Efforts are underway to expand the number of days other trout parks are open to fishing in the winter. A large habitat improvement project has also

been approved for Maramec Spring for the coming fiscal year. The project will consist of large boulder cluster placements in a number of locations throughout the spring branch.

Hickory Creek—A winter catch-and-release season was successfully established in the White Ribbon Trout Area of this stream from November 1 through February 28. Sampling in February revealed many trout still present in the stream that had survived more than 3 months of catch and release fishing. This "delayed harvest" concept has been used for seasonal trout fisheries in impoundments and in one small spring branch, but had not been previously used in a Missouri stream.

New Winter Trout Fisheries – The Department's cooperative winter trout program in small impoundments continues to grow with the addition of a fishery in Mexico Missouri. Under this program, the Department partners with local communities and the cost of purchasing and stocking trout is shared equally. Four such impoundments are now established and inquiries from additional communities are increasing. All trout are purchased from private hatcheries and the fisheries are managed with delayed harvest regulations (catch and release fishing with artificial lures and flies only from November 1 through January 31).

Trout Stream Acquisition – The Plan for Missouri Trout Fishing set a goal of acquiring 10 miles of trout streams by July 1, 2009. The Department has experienced limited acquisition success to date due to few properties available, high cost of available properties and limited acquisition resources. However, properties are currently being considered and cooperative funding arrangements are being developed using Stream Stewardship Trust Funds (a fund that receives mitigation payments) and the Trout and Coldwater Fund (a fund that receives private donations). These funds are administered by the Missouri Conservation Heritage Foundation.

MO-Mike Siepker

Plans for trout research in Missouri this fall focus on a qualitative assessment of Missouri's trout habitat. This information will be used to better allocate hatchery-raised fish when stocking.

1. We will assess habitat in all 85 stream miles of MDC-managed areas with adult stocked trout. Sampling of stocked Blue Ribbon areas is the highest priority, followed by Red Ribbon and White Ribbon areas, respectively. If time permits, wild(no stocking) Blue Ribbon trout areas will also be surveyed.
2. Habitat in each area will be assessed qualitatively with a visual classification system by two independent teams of two researchers each. Each team will rank pools as 1st, 2nd, or 3rd class depending on qualities such as:
    a. Number of low velocity resting areas for adults
    b. Amount of cover for adults
    c. Depth and size

Riffle/run areas will also be ranked as 1st, 2nd, or 3rd class areas based on the following qualities:
    a. Number of feeding stations for adult trout
    b. Amount of bottom obscured by depth and structure
    c. Level of diversity in depth and velocity
    d. Length
3. Length and widths of all pools and riffle/run complexes will be measured so total area of each class level can be calculated for each management area. Locations of pools and riffle/runs will be mapped for each stream.

We believe a qualitative approach is needed to provide useful information in a reasonable timeframe. Further, the qualitative approach will provide information to delineate representative reaches if a more detailed assessment is needed at a later time, to develop habitat-based "suitability indices" and further refine stocking rates. The work is planned to begin in August of this year and conclude by January. A final report with each stream stretch mapped by habitat quality should be available by mid-summer 2007.

TN-Frank Fiss

TWRA produced a trout plan this past year. I have copies for the committee and they can be downloaded from TWRA's website. It is a pretty good summary of all our trout programs, and I hope a good plan for trout management in Tennessee.

TWRA's urban/winter trout program expanded again this past year. We started in 1999 with one location 14,000 trout. We now have 26 locations using 78,000 trout. Demand is so high that this past year, for the first time, we purchased a few thousand trout to help supply these fisheries.

We anticipate major renovations to our hatcheries this coming year. Flintville (55K pound facility) will be shut down for months as we recollect the spring water that feeds the hatchery. We plan to purchase at least 50,000 10-inch trout to replace this production. Hopefully our winter program can resist expansion this year. We also plan to instal oxygen systems at Erwin and Buffalo Springs hatcheries. And construct a sedimentation pond at Buffalo Springs, which will reclaim an existing raceway that is currently fulfilling this role.

We are monitoring the spread of didymo, and hoping that information from this meeting will lead to some answers. It is currently in Norris, South Holston, Wilbur, and Cherokee tailwaters. We have been warning anglers to clean their gear for several years to avoid the spread of all exotics, but apparently that was not an effective strategy.

I am still working with the Southeast Aquatic Resources Partnership on tailwater mitigation needs. Jim Caudill, USFWS economist, is working on an economic evaluation of tailwater fisheries in the southeast. When these data are ready, we will likely update the trout tailwater mitigation book. The plan is to reproduce that book with the economic

data into a format that will be more appealing to the public. I may be asking you to provide updates to your state's tailwater assessments. Hope you can help.

TN-Jim Habera

- Wild trout abundances were at or near the highest levels ever observed in many monitoring streams in 2005. The 2005 annual report is complete and can be downloaded at: http://www.homestead.com/twra4streams/troutres.html
- Have *Didymo* in 4 tailwaters now: South Holston (South Fork Holston River), Wilbur (Watauga River), Norris (Clinch River), and Cherokee (Holston River). Cherokee is most recent discovery and *Didymo* there is not nearly as well developed as in the other three tailwaters. Only one trout tailwater in Region IV now without *Didymo* (Ft. Patrick Henry).
- Two-year study of wild rainbow trout otoliths from 10 populations from a variety of streams is complete. Two preparation methods (cutting transverse sections vs. grinding to sagittal midplane) were compared, and growth and longevity characteristics were documented. There was 87% agreement between the preparation methods for 682 comparisons using fish that were age 0 through age 6. Transverse sectioning is most reliable, but is much more time consuming. Sagittal/transverse agreement was relatively high for ages 0-3 (84-99%), then declined for ages 4 (68%), 5 (64%), and 6 (20%). Longevity appears to be about 6 years, although relatively few fish live beyond age 3 (>10%). Growth is variable (254-mm fish can be 1-6 years old), significantly better in streams with alkalinities >30 mg/L $CaCO_3$, and some populations in low-alkalinity streams appear to be stunted.

GRSM-Matt Kulp

1. **Brook Trout Fishing Study Results**

GRSM staff is working on compiling the results of a three-year brook trout fishing study for publication in a fisheries journal. The purpose of the three-year experimental brook trout fishery was to determine if legal fishing and harvest would impose any detrimental population level impacts to brook trout populations. The results of this study will be combined with results from angler creel surveys collected during the study, law enforcement staff observations, and data from outside Great Smoky Mountains National Park in order to make a decision regarding fishing and harvest of brook trout Park wide for present and future generations.

Eight streams (4 in TN, 4 in NC) were opened to fishing and harvest for 3 years under the current GRSM fishing regulations (i.e. 5 fish creel limit, 7-inch size limit, and single hook artificial lures only). Each stream that was open had a control stream which remained closed. Some streams were easily accessible and some were accessible by 5-7 mile hikes. We analyzed population abundance data from 2-3 sites

within each stream (both open and closed) for three years prior to and three years after brook trout fishing was opened. The following are the results of that study:

Objective #1: Has adult brook trout density (# fish/100m^2) declined >30% over a 3-year period due to fishing (pre-fishing vs. post-fishing)?
Results*:* There were no significant differences (declines) in adult brook trout density in seven of eight streams opened to brook trout fishing during the study period. A significant increase was observed in adult biomass in Hazel Creek ($p=0.025$). Variation which did occur was attributed to natural variation and was not related to open vs. closed *and/or* easy vs. difficult access.

Objective #2: Has young-of-year (YOY) or age-0 brook trout density declined >50% over a 3-year period due to fishing (pre-fishing vs. post-fishing)?
Results: There were no significant differences (declines) in YOY brook trout density or biomass in any stream opened to brook trout fishing during the study period. Variation which did occur was attributed to natural variation and was not related to open vs. closed *and/or* easy vs. difficult access.

Objective #3: Has the number of legal brook trout (>7-inches) declined over a 3-year period due to fishing (pre-fishing vs. post-fishing)?
Results: There were no significant differences in the number of legal brook trout brook trout in any stream opened to brook trout fishing during the study period. In all cases, significant differences that were observed were increases or in control stream. Variation which did occur was attributed to natural variation and was not related to open vs. closed *and/or* easy vs. difficult access.

2. Antimycin Projects 2006

- As of Jan 2006, GRSM has restored 11 streams (3 with antimycin; 7 with electrofishing) totaling 17.2 miles
- partnership projects planned for 2006
    1. Crane Creek, SC (USFS & SC DNR) – Brook Trout
    2. ponds, central TN (USFWS) – Barrens Topminnow
    3. Wrangell St. Elias, AK (NPS) – Rainbow Trout

3. Electrofishing Gear Comparison Study
    - cooperative with TWRA