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WATERSHED
ASSOCIATION**

*"Working together to protect
and restore the Harpeth River"*

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Voices for the Harpeth

Issue No. 1, 2002

The State of the River, 2002 **Good news, bad news, and how you can help**

To use a medical analogy: the patient is in serious condition but not yet on the critical list, say experts diagnosing the health of the Harpeth.

Signs of health include the fact that almost 70% of the approximately 1100 stream and river miles in the Harpeth River Watershed that have been assessed by the Tennessee Department of Environmental Conservation (TDEC) meet clean water and natural resource goals, according to TDEC's latest report. Many of the healthy streams are found in the heavily forested areas of the watershed, such as parts of the South Harpeth, Leipers Creek, and the Cheatham Wildlife Management Area. Aquatic diversity is high, meaning a lot of different kinds of fish, crayfish, mussels, and insects survive in the midst of one of the fastest-developing watersheds in the nation.

That's the good news. Unfortunately, symptoms suggest that current practices continue to threaten the watershed's vital signs. Over a quarter (26%) of the TDEC assessed streams do NOT meet some water quality goals, 27% have not been surveyed, and 6% are suffering from severe pollution — much of it related to development pressures.

We've got a lot to lose

The Nature Conservancy of Tennessee has identified globally important "seep communities" and forests in the headwaters areas of the South Harpeth, especially rich in diverse life because several different ecological regions meet in this area. The river and its tributaries are an important natural resource for the more than one million people who live in the region. With its canopied riparian (streambank) corridor, the river offers a peaceful wilderness canoe trip a few miles from our back doors. A segment of the Harpeth River in Davidson County is even designated a State Scenic River.

But there's nothing scenic about some of the things happening around the

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*Come to the HRWA's
Open House & Annual Meeting
at Sandy's Downtown Grille
May 5th, 4-7 p.m.
See back page for details.*



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**"It is well to have some water in your neighborhood, to give
buoyancy to and float the earth." — Henry David Thoreau, Walden**

We're on the Web! **www.harpethriver.org**

Thanks to the creativity and expertise of Don Green, the Harpeth River Watershed Association is just a mouse-click away from anyone in the world who wants to find out what we are doing and how to be a partner in efforts to preserve and restore the health of the Harpeth. When he's not writing HTML tags, Don is the new stormwater coordinator for the City of Franklin. He was previously the assistant director of the Tennessee Department of Agriculture's non-point-source pollution program.

Help us build a web site that provides one-stop shopping for everyone interested in maintaining the Harpeth. Visit us online at **www.harpethriver.org** — we welcome your feedback and ideas.

The HRWA web site and email service is generously hosted and provided free by ISDN-NET as part of its commitment to water quality improvements of the rivers that brought life to the Middle Tennessee Basin, and its ongoing efforts to use communication technology to re-create community.

Voices for the Harpeth

NEWSLETTER EDITOR: **PETER JORDAN**

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Help us get the word out —
Display copies of the HRWA newsletter at your business. Call us at 790-9767 for extra copies and display stands.

If you know others who would be interested in the HRWA and its work, please pass on this newsletter or send us names for the mailing list.

The State of the River

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Harpeth River watershed. From the ring road (Route 840) that threatens some of our most ecologically important headwaters, to poorly run small sewage plants, construction sites with inadequate erosion control measures, and expanding development with storm drains that shunt rainwater directly to creeks, the Harpeth faces threats from almost every direction.

Development and other stressors

The primary threats are sedimentation, nutrient enrichment, and loss of riparian habitat, this last especially true of smaller streams. To put it simply, we're bulldozing and paving over our natural heritage. When we develop, we're not being careful enough to keep sediment out of nearby streams, we're converting fields and forests into pavement and rooftops, and we're bush-hogging the tree cover that keeps streams cool and creates habitat for a diversity of wildlife.

Urban and suburban development have drastically increased stormwater runoff, meaning the Harpeth and its tributaries flood much more rapidly with less rainfall than was the case even in the recent past. This more frequent flooding erodes streambanks and widens stream and river channels. This channel widening, combined with less rainwater soaking into the ground to slowly and continually feed the creeks, largely accounts for why the

Harpeth is shallower in many areas than it used to be. And with less water flow on a regular basis, the Harpeth is increasingly vulnerable to stresses from our activities. Agricultural practices that allow unlimited livestock access to streams and loss of riparian habitat are also problems. And in the middle portion of the Harpeth, the effluent from three sewage treatment plants in short succession stresses the river with excessive nutrients that create low dissolved oxygen levels. It's as if the watershed has tuberculosis and is losing breathing capacity.

HRWA: Leading the way

Ailing, but with a good chance of recovery if it gets the right treatment — the watershed needs continuing expert diagnosis, treatment, and monitoring. The Harpeth River Watershed Association (HRWA) combines technical expertise with volunteer involvement in programs like our Visual Stream Assessment Survey and Sediment Study to identify problem areas. Of course, any successful long-term effort requires partnership and collaboration. Thus, the HRWA is building working relationships with city, county, state, and federal governments and agencies; with private developers; and with landowners to restore the Harpeth's vital signs. Working together, we can all contribute to preserving and restoring one of the nation's more biologically diverse watersheds for future generations. ♦



The complete loss of streambank vegetation is a problem in many areas. This spot is on Trace Creek in Williamson County. Streambank or "riparian" habitat is vital to give shade to keep the stream water cool, to filter and slow rain runoff into the stream, and to provide wildlife habitat.

Clearing up the linguistic mud ...

"RiverSpeak" — A Watershed Primer

Like any specialty, watershed conservation work comes with its share of amusing and odd acronyms, legal jargon, and Latin-derived techno-speak. Here is a glossary to help decipher the lingo — we'll soon have you sounding like a "river" expert!

Benthic: This adjective means "of or relating to the bottom of a body of water." Aquatic ecologists pay a lot of attention to "benthic species" (critters like mussels, crayfish, and juvenile stages of insects that live on the bottom of a lake or river) because they're the most accurate indicator of aquatic health.

BMP: A "Best Management Practice" is any activity that reduces or prevents pollution, or improves ecological conditions in a watershed. BMPs refer to practices that control erosion and stormwater flows, limit livestock access to creeks, restore stream bank habitat, maintain stream buffer zones in site design for subdivisions, and other approaches that minimize the effect of human activity on the environment.

Clean Water Act: The national legislation designed to protect and restore the nation's water resources. The Act was passed in 1972 in response to growing public concern about serious and widespread water pollution. Of the many components of the law, section 303 requires states to assess stream health and identify those that do not meet water quality standards. Stream segments on the "303(d)" list are "impaired," and are a priority for improvement efforts and more stringent controls on pollution activities.

DO: Dissolved Oxygen (DO) is one of the most important of the water quality standards. If DO is too low, fish and other aquatic life begin to suffocate. The Harpeth mainstem (the main branch) is impaired because DO falls below standards



Maryland Farms in Brentwood. This typical style of commercial development with separate buildings and no shared parking garages has created an almost 100% impervious area over what once was a farm, meaning that virtually all of the rain that falls now pours directly into storm drains rather than being absorbed into the ground. A stormwater retention pond is in the back right.

during certain times of the day in the warmer months. Too much algae in the river (which gives it a greenish color) has a tremendous effect on the DO levels, making them fluctuate widely during a 24-hour period. Algae are fed by nutrients coming from fertilizer, sewage plants, livestock, and other point and non-point source pollution.

Flashy: A "flashy" stream gets lots of water very quickly and even overflows during a rain. A natural stream increases its flow much more gradually and doesn't reach levels as high as a "flashy" stream. In Middle Tennessee, a major cause of flashiness is development. Asphalt and storm drains shunt rainwater into streams much more quickly than happened before development. The resulting fast flows scour stream banks and cause flooding. Spencer Creek, which drains the entire Cool Springs area, is now extremely "flashy."

Mainstem: A mainstem is the main branch of a river. The Harpeth's mainstem begins with springs in Eagleville, in Rutherford County,

and winds for 117 miles until it empties into the Cumberland in Cheatham County.

MS4: The Environmental Protection Agency (EPA) requires every city over a certain size to develop a Municipal Separate Storm Sewer System (an M + 4 S's, hence MS4), meaning the city can no longer mix stormwater and sewage in the same system. In a lot of older cities (like Nashville), the same system handles stormwater runoff and sewage. During heavy rains, the system can't handle the volume, so raw sewage runs into the river. In the watershed, Franklin, Williamson County, Nashville, Brentwood and Dickson now have to have a special point source permit for their storm drain systems, and they will need to design these systems to reduce pollutants and maintain water flows at pre-development levels.

Municipal Stormwater Permit: To discharge stormwater into a stream within an MS4 (see above), a town, city, or county has to have a

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"RiverSpeak"

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municipal stormwater permit. These permits are issued under the NPDES program (see below) and certify that the municipality complies with EPA water quality standards or has specified adequate stormwater control strategies. Franklin formed a special stormwater committee in 2001, in which HRWA Board member and past president El Cox participated, to design the stormwater ordinance now being put in place.

NPDES: The National Pollutant Elimination System (NPDES) permit program was established under the Clean Water Act to regulate any point source (such as the effluent from a sewage treatment plant, industrial plant, or municipal stormwater system) that discharges pollutants into a body of water.

Non-point source pollution: This pollution does NOT come from a single outlet, like a pipe from an industrial plant (see "point source pollution" below). Non-point source pollution is actually more of a problem than point source pollution in the Harpeth River watershed. Non-point source pollution includes runoff from golf courses, yards, parking lots, and — to a lesser extent — from farms.

Nutrients: "Nutrients" sound like good things to have, but a river can have too many. The Harpeth, especially in summer, sometimes has such high nutrient levels from sources like sewage treatment plants and fertilizer from lawns and golf courses that the algae and bacteria grow rapidly and can choke out other life in the river.

Point source pollution: This is pollution from a pipe, a single "point,"

Expertise and dedication ...

Meet the Staff of the HRWA

FROM LOWER LEFT: Polly Nelson (environmental specialist), Gwen Kanies (office manager), Dorene Bolze (executive director), and John McFadden (director of science programs) at the Little Harpeth.



like a sewage treatment plant or factory. The Harpeth watershed has 24 sources of point source pollution, including 10 sewage treatment plants. The largest is the City of Franklin's plant. When expanded, it will be four times the size of the Dickson sewage treatment plant, the next largest.

Riparian: According to the American Heritage Dictionary, "riparian" means "of, on, or relating to the banks of a natural course of water." Watershed management and stream health are linked to the "riparian zone" — the vegetated area along the stream or river bank.

Runoff: Runoff is water that comes off the land rather than soaking into it. The more rooftops, roads, and parking lots there are, the more runoff, which translates into flooding and pollution.

TMDL: The Total Maximum Daily Load (TMDL) is a determination of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. A TMDL is also a plan, applied to "303d streams" (see

above), to allocate the allowable amount of pollutants from all sources and include a margin of safety. TMDLs are not easy to design or enforce. The EPA is developing two TMDLs for the Harpeth: one will set the maximum nutrient inputs that will allow the Harpeth to meet dissolved oxygen standards. The sediment TMDL, out in May, will set the amount of sediment loadings from construction sites, point sources, and non-point sources for all 28 stream segments determined to be impaired because of excess sediment. You can download a copy of the Harpeth sediment TMDL from the TDEC web site: www.state.tn.us/environment/wpc/tmdl.htm

Turbidity: This describes how unclear a liquid is. The turbidity of a river often indicates how much sediment is in the water but not settled on the river bottom. Algae, bacteria and debris also cause turbidity. After a big rainstorm, the Harpeth is highly turbid because of the extensive development in the watershed.

Watershed: A river's watershed is the land area that drains into it. The Harpeth River's watershed covers 872 miles and embraces many smaller subwatersheds or basins. The Harpeth itself is a subwatershed of the Cumberland River. ♦

Want to know where the impaired stream and river sections are in the Harpeth?

Contact HRWA for your free brochure with color map. Call 790-9767 or visit us online at www.harpethriver.org.

HRWA's Visual Stream Assessment

Poor Streambank Habitat Widespread in the Harpeth

The view from the riverbank isn't pretty at many of the 217 sites covered by the first systematic visual survey conducted by the HRWA of the impaired streams in the Harpeth.

Conducted from August-December 2001, the volunteer, site-specific Visual Stream Assessment project — the first of its kind in Tennessee — was designed and conducted with a \$19,000 grant from the Department of Agriculture's Non-Point Source (NPS) Program. This program administers federal funds to identify and correct pollution that comes from runoff, agricultural practices, and activities like development. The survey focused primarily on the "303(d)/305(b) listed streams in the watershed," meaning creeks and rivers listed under the provisions of the federal Clean Water Act as having pollution problems. The NPS program approached the HRWA to conduct this survey because it wanted to know where to focus its efforts and funds to improve stream health.

Designing the study

John McFadden, HRWA director for science programs, designed a protocol based on several agency-designed stream monitoring programs. John then trained 30 dedicated people to photograph and use a ranking system



HRWA

Eroding streambanks like this one are not uncommon in the Harpeth. Stormwater rushes off pavement and through storm drains, creating higher and faster waters than ever before. Scoured streams are a source of sediment in addition to the runoff from construction sites with poor erosion control.

to score the condition of eight stream characteristics: riparian zone, bank stability, canopy cover, invertebrate habitat, riffle and pool habitat, water appearance, nutrient enrichment, and channel conditions. Polly Nelson, HRWA environmental specialist, designed the database and compiled the report. The database includes all the photographs and can be integrated with mapping software.

From this visual assessment, about 48 sites were identified with conditions that appear to be significant causes of water quality degradation.

"The purpose of the project is not to point fingers," says Nelson. "It's to know where the worst problems are so

that private and public entities can begin to correct them. The assessment will help agencies and property owners prioritize their efforts to implement best management practices (BMPs), with the overall goal of improving the water quality of these stream segments. Ultimately, we'd like to see all these streams removed from the 303(d)/305(b) list."

Assessing the results

The results clearly indicate a watershed-wide problem with poor streambank habitat. "The loss of 'riparian zones' is both a major cause and the most dramatic symptom of water quality problems," says Nelson. Riparian zones — the natural, vegetation areas which should be adjacent to streams and rivers — filter nutrients and sediments, stabilize banks, and provide cooling shade. But in many areas of our watershed, these riparian zones are damaged or nonexistent.

"Volunteers scored over 100 sites as having severely impaired riparian zones less than ten feet in width, and pictures confirmed that many sites had no riparian zone at all," notes John McFadden. Also, more than 80 sites had problems with bank stability. ♦

VOLUNTEER SPOTLIGHT: Harlin Parmer

Fresh from a trip to Oregon, where he saw a 70-mile stretch of road with a single plastic milk jug the only litter, Harlin Parmer told his friend Mike Walton, "It just breaks my heart what they've done to the Harpeth."

He was speaking to the right person at the right time. Walton pulled out an HRWA membership card and Harlin Parmer signed up.

"You talk about upping my spirits! I've prayed for something like this for so long," says Parmer. "This organization is unbelievable. These people have got their act together. They're professional chemists and biologists, and sooner or later, when we get into a head-butting contest over a tough political issue, we'd better have our facts straight."

Along with 29 other volunteers, Parmer, a self-employed stained glass artist who lives on Waddell Hollow Road, has spent long hours helping the association compile its Visual Stream Assessment Survey, the first ever comprehensive look at the condition of the dozens of streams and rivers that feed the Harpeth (see article above). Parmer personally surveyed 54 different sites, from downtown Franklin to Dickson and Hickman Counties, taking photographs and scoring the condition of eight stream characteristics.

"Thanks to the hard work of volunteers like Harlin and the support of state agricultural and environmental officials, for the first time we can speak about specific conditions in our watershed," says Dorie Bolze, HRWA executive director. ♦

NEWS FLASH!

The Tennessee Department of Environmental Conservation honored Harpeth River Watershed Association with the **2002 Aquatic Resource Preservation Award** for HRWA's Visual Stream Assessment program.

Looking Downstream

A Vision for the Harpeth River Watershed and the Association

At the Harpeth River Watershed Association "War Room" in a donated upstairs office on Franklin's historic Main Street, the only constant recently has been change. Staff members man the desks, a giant map of the watershed covers one wall, the phone rings constantly, donated water quality equipment fills half the room, volunteers send in data and stop by to help, and computer printers churn out grant proposals and reports. Thanks to the support of people throughout the watershed — businesses, municipalities, national foundations, state agencies, and more — the HRWA is afloat and riding the currents.

Growing an organization

In the summer of 2001, the HRWA secured two important grants: \$15,000 from River Network to hire an executive director, and \$19,000 from the TN Non-Point Source Program to conduct a visual assessment of impaired waters in the Harpeth (see page 5). As a result, we have grown in a short time from incorporation in late 1999 by Franklinites concerned about water quality in the Harpeth, to an organization that covers some six counties with a four-person staff (some part-time), dozens of volunteers, a growing membership base, and donated office space (thanks to the generosity of our board president, Mike Walton).

Since the HRWA's inception we've raised almost \$75,000, including about

\$56,000 in grants and earned income, and over \$18,000 in donations. Supporters include the City of Franklin and Williamson County, citizens throughout the watershed, and corporations (see page 7). However, we wouldn't be successful without the incredible time devoted by many people involved



HARPETH RIVER WATERSHED ASSOCIATION

in river studies — like the joint sediment study with the Cumberland River Compact (see page 9), and the visual stream assessment (page 5); fundraising, outreach, internal system management (helping us with their software know-how), scientific and engineering expertise, and the like!

The HRWA also owes much of its success to the Cumberland River Compact (CRC), which organized the community meetings that galvanized the initial core volunteers. The CRC also pulled the expertise together to design our joint ground-breaking volunteer sediment study.

Sources of grants or restricted project support, 1999-2001:

City of Franklin — \$4,000 for TVA project
 Gaia Fund — \$1,000
 River Network — \$16,625
 Southern Land Company — \$4,000 for TVA project
 Tennessee Department of Agriculture's Non-Point Source Program — \$19,000 for stream assessment
 Williamson County Govt. — \$4,000 for TVA project

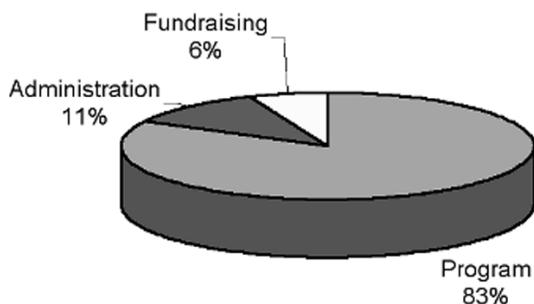
Where we go from here

Our internal goals include building a fiscally sound organization grounded in the communities of the watershed. We intend to expand the board to 11 members with geographic representation across the watershed by the end of 2002. We have also established a committee structure with five key committees: Fundraising, Governance, Outreach/Education, Science and Policy, and Finance. "The new committee structure will enable us to focus our energy much more effectively and bring enthusiastic volunteers into leadership of our projects," says Mike Walton, HRWA president.

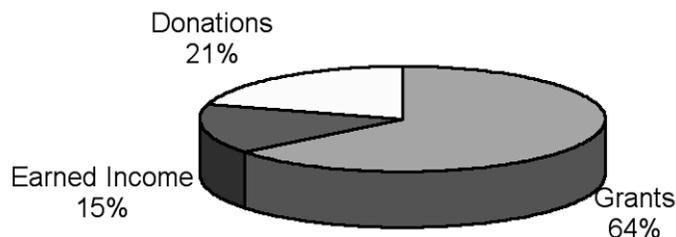
Equally critical is a broad membership base. "We need to be a major player in the future of middle Tennessee to assure the future health of our watershed, and that takes both financial clout and membership," adds Walton. "Even if members simply con-

Continued on page 7

2001 Expenses: \$41,138



2001 Income: \$52,913



Looking Downstream

Continued from page 6

tribute annual dues of \$20, it's a sign that Middle Tennesseans take their natural resources seriously."

Externally our goals are simple, but achieving them will take all the scientific, technical, marketing, educational, and organizing talent we can muster! Our long-term goal, of course, is to have all streams assessed as healthy and no longer on the state list of impaired waters, also known as the "303d list" (see "Clean Water Act" definition on page 3). We also need to build an informed citizenry that cares about the Harpeth and participates in preserving and maintaining it. While the Harpeth is stressed in areas, it is certainly worth fighting for.

Scientific expertise and community in support of the Harpeth

Our efforts are grounded in applying science to our goals. We plan to build the same watershed management expertise seen in national organizations, but thanks to our volunteers and the incredible talent located in the area, we'll apply that expertise right here in middle Tennessee.

Our number one goal in 2002 is to complete a natural resource inventory of the watershed and prioritize threats by geography and cause. With our professional expertise and a broad network of enthusiastic volunteers, HRWA is moving into position to assess and improve the watershed's ecological health from its headwaters in Rutherford County to the mouth in Cheatham County where it flows into the Cumberland.

Gathering convincing data to help design, implement, and evaluate ways to best control stormwater, design developments, and restore stream habitat takes an enormous amount of legwork, but the effort will pay off. "We want everyone who lives, works, or plays in the Harpeth River watershed to feel proud of the Harpeth and comfortable supporting our efforts," says Mike Walton. ♦

Special thanks to Joel Emerson for his amazing computer services.

Contact him for your computer hardware/software needs: 289-0186

In Appreciation for All Your Efforts ...

The Harpeth River Watershed Association would like to thank the following for their time, attention, and financial support since our inception in November 1999.

ORGANIZATIONS

Aquaeter ▲ Black & Veatch Corporation ▲ City of Franklin ▲ Cumberland Region Tomorrow
Cumberland River Compact ▲ Currey Cattle Co. ▲ Franklin National Bank ▲ Franklin Tomorrow
Gaia Foundation ▲ Harpeth Quick Print ▲ The Heritage Foundation of Franklin
and Williamson County ▲ ISDN-NET ▲ The Land Trust for Tennessee
Natural Resources Conservation Service ▲ The Nature Conservancy of TN ▲ River Network
Southern Alliance for Clean Energy ▲ Southern Environmental Law Center
Southern Land Company ▲ Southwings ▲ Synapse Energy Economics
TDA Non-Point Source Program ▲ TDEC Water Pollution Control
Tennessee Clean Water Network ▲ Williamson County Government ▲ World Wildlife Fund

INDIVIDUALS

Joe Adams	Craig Ferrell	Will Martin and Jean Nelson
Jenny Adkins	Alan Fister	Melinda Welton & John Noel
Will and Cissy Akers	Don and Patty Fountain	Robin Page
Dave Austin	Michael and Dick Fox	Harlin and Carole Parmer
Robert Aycok	Pam Franklin	Joan and Hank Parmer
Ernie and Nell Bacon	Phil Ganter	Margo Farnsworth and
Sandra Bailey	Claudia Gifford	Jim Pascoe
Chris Barberic	Don Green	Mary Pearce
Jeff Barrett	Robin Haley	Toni Peterson
Vic Bates	Yvonne and Scott Hall	Peggy Phelps
Ran Batson	Mitch Hampton	Jeff Powell
Andrew Beauchamp	Elizabeth Hand and Phil Pace	Aubrey and Penny Preston
Kaki Beckett	Ralph Harder	Clara Priest
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Philip Crothers	Dianna Maher	Mike Walton
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Hugh DuPree	Phillip Morgan	Bet Wise
Joel Emerson	Jason Morrow	William & Martha Wolfe
James A. Emrich	Chuck and Sandy Neese	
Kate Faccia	Polly Nelson	

Mussels, Muscles, and Leadership: Mike Walton

A Franklin jeweler floats the Harpeth

"We're going like gangbusters," says Mike Walton, the HRWA's president since July. "We're doing so much that the only frustration is trying to keep up with what's going on."

Walton has not only immersed himself in the organization but also in the watershed itself. Last spring, he paddled the entire length of the Harpeth, from the river's headwaters in Rutherford County near Eagleville all the way to the Cumberland in Cheatham County to assess the health of the river, and he has been working on the sediment study ever since.

Within the next month, he'll step into the river once more, wading and

paddling his way downstream with a camera, assessing changes to the river since his assessment last year. This time, he'll also be cataloging mussel species, one of the most important indicators of a river's health.

Some 20 different types of mussels are known to have lived in the Harpeth, and Walton hopes he'll find all twenty still alive. But development pressures, especially the sediment from runoff, have created a heavy burden on the Harpeth and its tributaries.

Walton hopes everyone who lives, works, and recreates in the Harpeth will feel comfortable supporting the efforts of the HRWA. "There's a role for everyone to be a partner, from



"Our number one priority is to get as many people as possible involved in preserving the river."

MIKE WALTON

contributing money and organizing fun educational events, to participating in river studies and coordinating stream habitat restoration projects in their area."

A 42-year-old father of two, Walton runs Walton's Estate Jewelry on Main Street in Franklin, and has donated to HRWA the use of the space above his store for the organization's office. ♦

The Harpeth — it flows through our lives. We all live downstream.

The Harpeth and its tributaries drain 872 square miles. While much of it is still forested or agricultural, another third is one of the fastest growing regions in the United States. We need your help to preserve and restore the ecological health of this watershed. Please join the Harpeth River Watershed Association and get involved!

✓ ***Yes, I want to support and join the efforts of others with the Harpeth River Watershed Association. Please send me the color map of the Harpeth River Watershed.***

Name: _____

Address: _____

Phone: Day _____ Evening _____

Email: _____

Volunteer skills/interests:

- River studies Restoration projects
- Education Newsletter/web design
- Membership Recreational events
- Fundraising/Special Events
- Other _____

Sponsorship Levels:

- \$20 \$250
- \$30 \$500
- \$50 \$1000
- \$100 Other

We'll send you ...

- ✓ A free TN river poster if you donate \$20 (Choose: Small Stream, Stream, or River Ecosystem).
- ✓ A free HRWA t-shirt for a contribution of \$30 or more
- ✓ All three stream and river ecosystem posters for contributions of \$50 or more

Please make checks payable to the Harpeth River Watershed Association and return this form and your contribution to: **Harpeth River Watershed Association, P.O. Box 1127, Franklin, TN 37065**

For more information, call 790-9767 or visit WWW.HARPETHRIVER.ORG.
The HRWA is a 501(c)(3) non-profit organization and contributions are tax-deductible.

Dirty Business: Sampling the Harpeth

HRWA and CRC team up on ground-breaking sediment study

Sewer plants generate most of the pollution headlines, but “non-point-source pollution” (pollution that does not come from a single outlet) is a much more deadly enemy to the health of most river systems, including the Harpeth River watershed. As Middle Tennessee grows, construction uproots its fields and forests, and dirt — “sediment” — washes downstream to choke our streams and rivers.

What’s the problem with a little dirt in the river? Doesn’t it all just wash downstream anyway? Well, the Harpeth system carries a whole lot more

than just a “little dirt.” In a year and a half, an astounding 3,650 dump truck loads of sediment flowed past the Highway 100 bridge, according to a ground-breaking study by the Cumberland River Compact (CRC) and HRWA volunteers. The CRC designed the study with the expertise of staff from the US Geological Survey, the TN Department of Environmental Conservation (TDEC) Non-Point Source program, and other agencies who are using the study’s findings.

How the study works

David J. Wilson, both with the CRC and on the HRWA Science and Policy Committee, organized and heads up the sediment study. Begun in September 2000, the study has accumulated some 970 different data sets from 42 volunteers who go to 47 sites and lower their sampling buckets into the cold, raging creeks and rivers every time we have what the CRC calls a “rain event.”

“Our volunteers get cold, wet, muddy, and miserable, but they get some incredibly useful data as to what is actually going on in our river system,” says Wilson, a senior research fellow for Brown and Caldwell, an environmental engineering firm.

The volunteer HRWA samplers are the perfect source of legwork for a study like this, Wilson says. “A river

sediment study is not rocket science—such a study can be carried out in good order by amateur volunteers without a burdensome amount of training. And sediment samples have to be collected when it storms, so it’s much easier for nearby volunteers to get to sampling sites than it is for professionals who may have to drive out 30 miles from Nashville on short notice.”

“Sediment is the number one water quality problem in the Harpeth River watershed.”

DAVID J. WILSON
COORDINATOR OF THE
VOLUNTEER SEDIMENT STUDY

The volunteers take a sample of the stream water, usually in gallon-sized plastic milk jugs, then determine the turbidity (a term which means, roughly, the “muddiness” of the water). Wilson and

HRWA board member Rick Lockwood designed a technique to determine total suspended solids (TSS), a measurement used in water quality studies and regulations.

Wilson and John Callighan, a retired chemical engineer, feed the data into a giant Excel spreadsheet, which crunches numbers according to formulae like “a log-log least squares plot of M versus Q” (don’t ask!) to produce what Wilson says is a “rather spectacular result” — a measure of the tons of sediment pouring into the river.

How “dirty” is it?

Wilson and Callighan estimate that in the first 559 days of the study, the 873 square miles of the Harpeth River Watershed lost some 156,000 tons of sediment — most of it due to the massive amounts of development in the watershed area. So far, the study sug-

“Thank you for finding better places to build our houses and for studying our water.”

Christopher, age 8



Mary Brockman, HRWA board member, using the turbidity tube to test sediment loading at her study site on the Harpeth.

gests that some of the most sediment-loaded areas in the Harpeth include the Harpeth at Moran Road, Flat Creek through Bellevue, the Little Harpeth at Vaughn Road, and the West Harpeth at Del Rio Pike. Some of the clearest areas include the South Harpeth, Leipers Fork at Baily Road Bridge, Slickrock Branch, and Newsom Branch east of Pegram.

“Excessive sediment kills fish and other life in the river, and sediment deposits raise the river-bed, increasing flood potential,” explains Wilson. “Sediment can even interfere with the operation of drinking water treatment plants, and high levels of sediment indicate stream bank erosion and loss of valuable topsoil.”

“Thanks to the work plan developed by the CRC’s water quality advisory committee and the invaluable assistance of the HRWA’s Elbert Cox and Dorie Bolze in recruiting volunteers, for the first time we’re developing a reliable measure of the effects of growth on our watershed,” Wilson adds.

The information from the study will lead to better land management practices — and a clearer river. ♦

An Electrifying Report

Growth means utility infrastructure that erodes our watershed

When the Tennessee Valley Authority (TVA) announced plans last year to build a seven-mile transmission line that would cut across the northern border of Franklin through established and new neighborhoods, both the city of Franklin and Williamson County passed resolutions opposing the line.

Many groups and concerned citizens raised important historic, aesthetic, open space, and environmental issues about the line, which would cut in front of historic properties and farms and down historic roads.

The HRWA pointed out that one proposed route would further degrade federally designated impaired stretches of the Harpeth including nine stream or river crossings, five of them near each other on the West Harpeth.

After HRWA raised the issue, TVA expressed interest in working with HRWA on these sites, including one near Old Hillsboro Road on the Harpeth, to implement vegetation management more beneficial to the watershed.

Planning for the future

But the vegetation management programs do not address the more fundamental issue of how TVA and its power distributors plan their electrical infrastructure, a key issue with the growth in this part of the watershed.

HRWA teamed up with the Southern Alliance for Clean Energy (SACE) to bring in national energy expertise to review TVA and Middle Tennessee Electric Member Cooperative (MTEMC) electrical infrastructure planning with an eye for possible alternatives to the currently proposed Bingham substation. MTEMC is planning the substation out on Old Hillsboro Road, with a TVA transmission line planned to link the proposed substation to the newly built substation at the intersection of Mack Hatcher Parkway and Cool Springs Boulevard in Franklin.

Funded by the city of Franklin, Williamson County, and private donors, this review of MTEMC and TVA plans was conducted by Synapse



“Power line river crossings are a big concern because the transmission and distribution lines that already cross the Harpeth are sites of severe bank erosion where critical bank vegetation is unnecessarily stripped bare.”

**DORENE BOLZE
HRWA EXECUTIVE DIRECTOR**

Energy Economics of Boston using state and federal regulatory procedures.

“This needs assessment followed the same procedure used around the United States by state and federal utility regulatory commissions,” explains Dorie Bolze. “Our consultants requested the same type of studies and analyses to justify the proposed transmission line and substation that would be required by a commission for approval.

However, neither TVA nor MTEMC is subject to such regulatory oversight, so our consultants have had a hard time getting the data they need.”

TVA and MTEMC have provided responses that indicate at least five more substations in Williamson County and several more transmission lines are on the drawing board, not to mention additional MTEMC distribution lines. But after five months of requests, TVA is still unable to explain how it makes decisions on options for the transmission system in Williamson County and how it decides routes for new lines. According to Synapse, the material provided did not “demonstrate that all the proposed transmission lines for Williamson County are needed to meet future demand. It has not provided justification for the new lines, nor analyzed energy efficiency alternatives to mitigate the need for the lines, nor provided any analyses of alternatives to the lines.”

The need for greater efficiency

The continued growth in the county creates a perfect opportunity to implement energy efficiency measures for new construction and reduce the growth in electrical consumption. According to a separate report by Synapse to be released shortly, energy efficiency measures can reduce demand to such an extent that TVA and MTEMC could actually cut back on some of their proposed new infrastructure.

Cutbacks like this would mean lower power bills for all of us, plus a reduced negative effect on air and water quality, the scenery that is part of our quality of life, and our historic resources.

The best time to institute energy efficiency is during new construction. Because Williamson County has one of the highest growth rates in the U.S., SACE and HRWA have proposed to TVA that the agency use Williamson County and Franklin as a pilot for new energy efficiency programs. TVA appears interested and has begun discussions with Southern Land Company,

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that is building Westhaven — the largest development in state history — right in the path of the proposed TVA line.

“We will never get ahead of this explosive growth, and all the transmission lines, distribution lines and substations it will bring, if we don’t start planning now.”

STEPHEN SMITH

EXECUTIVE DIRECTOR, SOUTHERN ALLIANCE FOR CLEAN ENERGY

It’s time for TVA and its distributors to step up to the plate, according to Stephen Smith, Executive Director for the Southern Alliance for Clean Energy. “Fundamentally, the challenge we all face here in the Harpeth, is that TVA and their distributors do not plan their delivery systems with customer input up front, or with energy efficiency or other alternatives,” says Smith. “This is a quality of life issue that requires vision and leadership. MTEMC needs to be responsive to its members and do more than push power through their meter. MTEMC needs better planning which includes alternatives to disruptive power lines and substations.”

HRWA members can help minimize the impact of future TVA and MTEMC infrastructure construction!

- Come to the next community forum on the TVA transmission line, **Monday, May 6, 4-6 p.m. at St. Paul’s Episcopal Church, 510 West Main Street, in Otey Hall which is behind the church on 6th Avenue and Fair Streets.** Anyone living in Nolensville, College Grove, Triune, Burwood, Leipers Fork, or the Franklin area — or along Old Hillsboro Road — is facing nearby electrical infrastructure construction in the next few years.

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Your Watershed Needs YOU!

Every one of us can help create a more healthy Harpeth River watershed. You can play a special role if your home, business, or subdivision is adjacent to a creek, but there is plenty that we all can do, no matter where we live.

Here are just a few of the ways that you can make a difference in the health of the Harpeth watershed:



Get involved with the planning and development process to encourage development that minimizes runoff and sedimentation. City and county land use decisions have a bigger effect on our watershed than anything else.



Dispose of hazardous wastes like paint and gasoline at approved hazardous waste collection points. In Williamson County, for example, Williamson Recycles will collect hazardous waste on Saturday, May 4, from 8:30 a.m. to 2 p.m. at the County Administrative Complex on West Main Street in Franklin.



If you live in a subdivision, get involved with the homeowners association to allow thick vegetation or buffer strips to grow along creeks to slow runoff and soak up pollutants. Plant trees, shrubs, and ground cover. They will absorb up to 14 times more rainwater than a grass lawn and don’t require fertilizer.



If you build a new deck or driveway, use materials that let rain soak into the ground. Pavement increases the runoff problem, creating flooding that chokes our streams with sediment and erodes the banks. Direct your house’s gutter downspouts to drain into the ground and not directly onto pavement.



Be efficient in your use of water. This will prevent septic systems from overloading and reduce the water pulled from the river for water supply. Use slow-watering techniques on the lawn to prevent runoff.



Maintain your septic tank.



Review your landscaping efforts for ways you can reduce water use and runoff, and make use of native plants.

Thanks to the Alliance for the Chesapeake Bay, Inc., for several of these tips. Visit www.harpethriver.org for more detailed information and links to these helpful Internet resources:

Fifteen Things You Can Do to Make a Difference in Your Watershed

www.epa.gov/owow/watershed/earthday/earthday.html

River Corridor and Wetland Restoration

www.epa.gov/owow/wetlands/restore/

Do’s and Don’t’s around the Home

www.epa.gov/owow/nps/dosdont.html

Tips on Preventing Nonpoint-Source Pollution from the Alliance for the Chesapeake Bay

www.epa.gov/owow/NPS/abc.html

Native Plant Recommendations for Middle Tennessee

www.se-eppc.org/states/TN/mid Tenn.htm

**Remember:
Everything
you put
on the
ground will
probably
end up in
the river!**

Come to HRWA's Open House & Annual Meeting

Sunday, May 5, 4-7 p.m.

**Presentations on the
Harpeth and HRWA
programs, 5:30-6 p.m.**

- See creek critters
- Tour the office
- Meet the HRWA board and committee co-chairs
- Be the first to have the new HRWA t-shirt
- Buy books about the Harpeth
- Enjoy appetizers and cash bar from Sandy's Downtown Grille
- Have fun!

**Sandy's Downtown Grille,
Main Street and Fourth
Avenue South in Franklin**

Please stop by! Families welcome.
For more info, call 790-9767.

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- Write your senators and congressmen and ask them to encourage TVA to develop their pilot energy efficiency program in Franklin and Williamson County. Also ask them to have TVA slow down on the proposed transmission line until they have initiated a planning process that includes public input and energy efficiency considerations. Send your letters and e-mail to both the regional and national offices, and don't forget to call. For contact information, visit this website: www.legislature.state.tn.us/info/congress.htm

- Write to Jim Baker, President of Middle Tennessee Electric Membership Cooperative, 555 New Salem Road, Murfreesboro, TN 37129, or www.mtemc.com. Encourage MTEMC, as a utility serving one of the nation's fastest growing regions, to be a leader among TVA distributors on initiating on energy efficiency programs. Ask MTEMC to be involved in efforts to design a planning process that includes the public and energy efficiency.

Learn more about programs for smarter energy use in the Southeast: contact the Southern Alliance for Clean Energy at 1-866-522-7223, or www.cleanenergy.org. ♦

Get Your Feet Wet

Jump in! If you're interested in getting your feet wet or your hands dirty, consider giving some time to your watershed. (And actually, getting wet or dirty is optional!)

Whether you want to be a river study volunteer, organize a neighborhood stream restoration project, give river talks to kids, organize public meetings, help put together fundraisers, provide accounting expertise, host a house party, hold a river float BBQ, or manage our database and mapping software, volunteering is the lifeblood of the Harpeth River Watershed Association.

To lend a hand, call the HRWA office at 615-790-9767 or email us at hrwa@harpethriver.org. ♦



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*"Working together to protect
and restore the Harpeth River"*