



# Stream Lines

2007

## Kara Suzanne Tecco 1982-2007

This issue of Stream Lines is dedicated to the memory of Kara Suzanne Tecco, our friend and colleague, who passed away unexpectedly at the age of 25 on Sunday, November 18, 2007. Kara was employed as the Adopt-A-Stream Coordinator for the River Raisin Watershed Council. Kara graduated with honors from Adrian College in 2004 with a Bachelor's degree in Biology and Environmental Science. She was a member of Alpha Chi National College Honor Scholarship Society, Phi Eta Sigma National Honor Society, and Beta Beta Beta Biological Honor Society. At the time of her death she was pursuing a Master's degree in Aquatic Ecology at Grand Valley State University.



It is difficult to know where to begin, to honor Kara's memory in a way that conveys a bit of her essence and captures her spirit and zest for life. Kara was a kind, gentle, genuine, heartfelt, quietly powerful, and passionate individual. So many times over the past year, I told our committee what a thrill it was to watch and be a part of Kara's development and growth. With each passing week, Kara grew more confident in her work and abilities. She truly blossomed and glowed from within. The more responsibility she was given, the higher she flew. That was never more evident than when the Adopt-A-Stream program was dropped in her lap at the beginning of 2007. Kara worked tirelessly as the program was reshaped and a framework developed. With her passion fully ignited, she toiled long hours over the summer in Dr. Jim Martin's lab at Adrian College creating a voucher collection of macroinvertebrates for the

council. She created a voluminous coordinators' manual and assisted in producing binders for each and every Adopt-A-Stream site. She surveyed sites, inventoried and reworked data, and was the catalyst for many new people to volunteer for the program. She wrote sections of the River Raisin Watershed Management Plan, she conceived, sketched, and wrote several pages for our new educational activity book, and helped develop a new database among many other tasks. She was a dedicated and hard worker. She made a difference.

Kara was a delight to work with. She was always positive and proactive. The RRWC is a small non-profit with limited resources and as such, we have to "make do" a lot. Kara never complained. She utilized the resources available to her and made the most of what we have. She worked around obstacles and figured out solutions. She didn't put limitations on her efforts. She worked until the job was done, period. She was always looking for ways to improve things and kept a list handy of things she felt needed further refinement. The Adopt-A-Stream program benefited greatly from her efforts. It is vastly improved as a result of her contributions. She made a difference.

Kara loved the outdoors and enjoyed hiking, camping, fishing, kayaking, snowshoeing, and cross country skiing. She loved reading scientific books and articles. And, she loved her Cabela's waders! Kara and her boyfriend, Graham Lewis, enjoyed many outdoor excursions in their life

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### River Raisin Watershed Council

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Adrian, MI 49221

Phone: (517) 265-5599

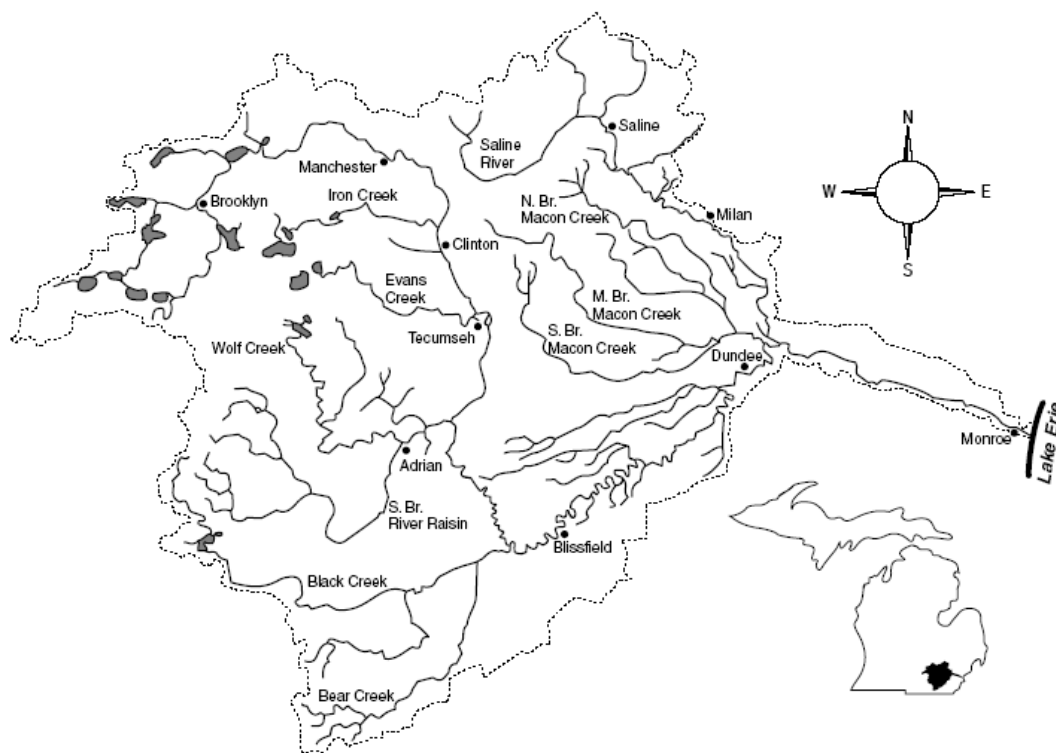
Fax: (517) 263-0780

Website: [www.riverraisin.org](http://www.riverraisin.org)

### Our Mission

*To inspire behaviors that enhance and sustain the River Raisin through advocacy, classroom and public education, water quality monitoring, volunteer clean-ups, and encouraging recreation on the river. It is also our goal to promote and foster an understanding of interdependence of the health and well being of humans, aquatic creatures, birds, fish, and all forms of wildlife living within the watershed.*

## The River Raisin Watershed



The River Raisin is made up of approximately 1,072 square miles of land in Lenawee, Jackson, Washtenaw, Hillsdale, and Monroe Counties in Michigan and Fulton County in Ohio. The basin is home to 192,889 people in 63 municipalities. There are approximately 429 lakes and ponds within its boundaries. The Raisin is 135 miles long, 570 feet above sea level at its mouth, and rises to 1,200 feet. Major tributaries of the Raisin are Goose Creek, Iron Creek, Evans Creek, Black Creek, South Branch Macon River, Saline River, and the Little Raisin.

### River Raisin Watershed Council

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### 2007 Executive Committee

Pat Sanders, Chair  
Bridgewater Township

Nancy Smith, Secretary/Treasurer  
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Mary Lirones, Member  
City of Saline

Jan BenDor, Member  
Pittsfield Township

James Kellie  
Monroe Township

Joyce Drake  
Cambridge Township

Hedi Kaufman  
Frenchtown Township

Pam Ackerman  
London Township

Lynn Wilson  
Rollin Township

Gayle Mitchell, Executive Director



### Welcome Dr. Jim Martin

The River Raisin Watershed Council is pleased to introduce Dr. Jim Martin as the new Director of our Adopt-A-Stream program. Dr. Martin has a Ph.D. in Entomology (the study of insects) from Texas A&M University. His doctoral research focused on foraging behavior and task changes in workers of the noxious pest, the Red Imported Fire Ant. He has sampled insect communities from Honduras through Canada, using a wide range of techniques and in many different habitat types. Since 2002, Jim has been an Assistant Professor of Biology at Adrian College in Adrian, Michigan



Photo courtesy of Adrian College

where he teaches courses in Entomology, Parasitology, and Aquatic Ecology. He has also appeared on the Discovery Channel where he was featured in an episode of *Intruders* called "The Killer Ant."

For the past two years, Jim has assisted the River Raisin Watershed Council with the Adopt-A-Stream Program by participating in both the Stream Search and Bug ID Day.

Dr. Martin's experience and expertise will be a tremendous asset to our program. We look forward to his help in the continued improvement of our Adopt-A-Stream program.

### Adopt-A-Stream Spring Stream Search

#### Discover what lives in the River Raisin!

Volunteer to participate in our annual spring stream search where we will collect insects to monitor the health of our river.

April 26, 2008

9am—1pm

Adrian College

Contact the Watershed Council for more details:

(517) 265-5599

## Watershed Management Plan Updates

*In early 2006, the River Raisin Watershed Council began the development of a watershed management plan for the entire basin using grant money awarded by the Department of Environmental Quality. The next few pages are dedicated to the accomplishments, products, and honors that are a direct result of the watershed management planning process.*

### Planning Progress

By: Scott Dierks

The River Raisin Watershed Management Plan is nearing completion. The first official submittal of the plan for review by the Michigan Department of Environmental Quality (MDEQ) will be by the end of this year. The likely scenario is final approval will be achieved by about March, 2008. This schedule will likely mean that the recommended implementation measures will be eligible for Clean Water Act 319 non-point source pollution control funds just in time for the next request for proposals from the MDEQ.

The vision of this plan is one of sustainable development that retains a healthy agricultural economy powered by diverse, local agricultural businesses that help drive ecological sustainability. These local agri-businesses diversify their crops and land-based opportunities; supply food and products to local government institutions, restaurants, and farmers markets and utilize precision agricultural techniques to achieve higher yields at lower environmental costs. Farmers finance sustainable projects, such as methane bioreactors, wind turbines, and solar panels and switch to native prairie plants for biofuels by tapping into the growing carbon emissions trading market.

Development in the watershed honors the continuum from rural to urban life. Residential growth follows conservation design and low impact development techniques to protect sensitive and critical natural resources. Residents grow to better understand and cherish the river through a networked group of non-profit organizations, local primary and secondary schools, colleges and universities that stitch together messages and curriculums that foster on the ground improvement projects. Recreational opportunities in the watershed continue to grow and natural area preservation and restoration connect critical wildlife corridors and extend riparian buffers all along the river and its tributaries. As much as possible, all the designated uses of the river are attained. This vision enforces local actions with watershed and global consequences – improved water and air quality, a lower carbon footprint, and a better quality of life for all watershed residents.

While time is running out, there is still a chance to get your improvement ideas and projects into the plan. Please note: improvement actions that build educational opportunities, lead towards improved water quality AND are included in this plan, stand a better chance of securing outside watershed funding than projects that are not included. Please contact the Watershed Council with your ideas as soon as you can.

### Stream Gauge to be monitored by Nancy Smith

The grant awarded to the River Raisin Watershed Council by the Department of Environmental Quality calls for tasks to be completed by different stakeholders during the development of the watershed management plan. One section of the plan development requires hydrologic monitoring to take place for the assessment of river conditions. Nancy Smith, a member of the Steering Committee for the River Raisin Watershed Management Plan, has agreed to monitor stream flow and water level fluctuations in fulfillment of this section of the grant. A stream gauge was installed in Evan's Creek behind Smith's house and

she will be responsible for recording and reporting any change in water levels. This information will be included in the Watershed Management Plan.

Thanks to the following for their help with the installation: City of Tecumseh Department of Public Works, Duaine Wells, Dr. Jim Martin, Greg Wicking, Pat Sanders, Gayle Mitchell, Kara Tecco, and Nancy Smith



Nancy Smith at  
Evans Creek

## New, Improved, and Expanded... the Adopt-A-Stream Program!

This past year marked a significant step forward for the River Raisin Watershed Council as our Adopt-A-Stream program was given a complete overhaul! Kara Tecco, co-ordinator of the program and Executive Director Gayle Mitchell, worked tirelessly this spring to organize the new program. The overhaul received high marks from volunteers during our Spring Stream Search and Bug ID Day. The Watershed Council now has a binder for each collection site that will act as a record for all insects collected at that site from now on. The binder also includes pictures and maps of the site as well as information for stream search



Kara Tecco was a major contributor to the improvement of our Program.

captains, collectors, and those identifying macroinvertebrates. The binders are located at the River Raisin Watershed Council office and can be accessed by anyone interested in the collection sites during our business hours. Also an improvement to



Dr. Jim Martin and volunteers work on identifying insects on Bug ID Day.



Greg Wicking and Judy Holcomb get ready to search for macroinvertebrates.

the program is an equipment tracking system. This new system enables the Watershed Council to keep track of all equipment that is signed-out and allows equipment to be more readily available for use during the Adopt-A-Stream program and clean-up events.

Dr. Jim Martin, Assistant Professor of Biology at Adrian College joined the Adopt-A-Stream program as its new director. Dr. Martin has already created a detailed and in-depth analysis and presentation of the data. In addition, he conducted a thorough analysis of all the data to date with plans for future refinement. He will also evaluate each site and create a protocol for adding new sites.

Finally, Kara Tecco and Dr. Martin created a voucher collection for the Adopt-A-Stream program. The voucher collection allows the Council to reference unknown insects against known ones for quick, accurate identification.

been written by consulting firms, community members, and non-profit organizations. SWIPPs are based on the well established and successful Michigan Wellhead Protection Program and contain the same basic seven elements. Currently, Michigan has eight approved SWIPPs in the Townships of Alpena, Adrian, and Ira. Three of these SWIPPs are in the River Raisin watershed. The MDEQ encourages source water protection on a regional scale. In order for this to be accomplished, the cooperation between programs and management plans with similar goals needs to take place.



Volunteer Ron Ryan reads through our new site binders.

### Michigan's New Surface Water Intake Protection Program

Under the Safe Drinking Water Act, states are required to implement a Source Water Assessment Program (SWAP). Through this program, states must identify the areas that supply public tap water, inventory contaminants and assess source water susceptibility to contamination, and inform the public of the results. In 1998, the Michigan Department of Environmental Quality (MDEQ) put together a SWAP Advisory Committee to develop a Source Water Assessment Program for the state of Michigan. The document they produced was submitted to and approved by the U.S. Environmental Protection in 1999. In total, 60 surface water supplies were assessed and the project took five years and five million dollars to complete. Once this data was gathered, the MDEQ used it to begin drinking water protection efforts. The data was the origin of Michigan's new Surface Water Intake Protection Program (SWIPP). SWIPPs can be initiated by community leaders and have

been written by consulting firms, community members, and non-profit organizations. SWIPPs are based on the well established and successful Michigan Wellhead Protection Program and contain the same basic seven elements. Currently, Michigan has eight approved SWIPPs in the Townships of Alpena, Adrian, and Ira. Three of these SWIPPs are in the River Raisin watershed. The MDEQ encourages source water protection on a regional scale. In order for this to be accomplished, the cooperation between programs and management plans with similar goals needs to take place.

In February 2007, the American Water Works Association's Source Water Protection Committee met with the River Raisin Watershed Councils Executive Director, Gayle Mitchell and Shane Horn from the City of Adrian. Their discussion focused around current and future collaborations for the River Raisin watershed. This committee will work to form partnerships between various organizations and protection programs. For more information, visit our website at [www.riverraisin.org/features/swipp](http://www.riverraisin.org/features/swipp).

## Soil and Water Assessment Tool created for the River Raisin

By: Scott Swan

The River Raisin Watershed Council has contracted with Stantec Consulting of Ann Arbor, MI to develop a hydrologic model of the River Raisin basin.

The MDEQ requires watershed management plans funded through Section 319 grants to quantify sources of pollutants and determine recommendations for improvements. Prioritization of watershed water quality problems and solutions includes solicitation of stakeholders for existing data and problem identification, gathering large amounts of data and, the use of a hydrologic GIS-based model.

In a watershed of this size, a GIS-based model will help us to efficiently estimate existing non-point source loads, and project the impacts of watershed land use changes and recommended improvements. We will use the GIS-based Soil and Water Assessment Tool (SWAT) to model existing and projected conditions in the watershed. SWAT was developed in the 1990's by Dr. Jeff Arnold for the USDA to predict the long-term effects of land management practices in large watersheds containing various soils and land use types. Because it is a long-term model, SWAT is not designed to predict individual flood events or estimate the effects of large, accidental spills. Rather, SWAT is designed to predict the yields of water, sediment, and agricultural chemicals in a river based upon physical conditions over an extended period of time. Examples of physical input data for SWAT include weather data, soil properties, vegetation, topography, and land management practices applied within the watershed.

SWAT uses topographic data to divide the watershed into subbasins, which are spatially referenced to each other. Within each subbasin, SWAT then identifies hydrologic response units, or HRU's, that have unique land cover, soil types, and management conditions. In addition to HRU's, each subbasin is assigned information about its climate, groundwater, ponds, wetlands, and its reach, the main channel, stream, or river

draining out of the subbasin. For the River Raisin SWAT model, elevation data was acquired from the USGS National Elevation Dataset. Rivers, lakes, and streams were provided by the USGS National Hydrography Dataset, and supplemented by the EPA Basins website. Minor errors in both datasets were manually corrected prior to integration into the model. SWAT identified 35 different subbasins within the River Raisin watershed. The following datasets were then incorporated into the model:

1. Data for dams and reservoirs was collected from the Great Lakes Fishery Commission, the Michigan Department of Natural Resources, and from local officials in the watershed.
2. Land Use data for the entire watershed was found at the NOAA Coastal Change Analysis Program website.
3. Soils data was provided by the US EPA State Soil Geographic Database.
4. Daily precipitation, temperature, wind speed, dew point, and cloud cover for 1995 through 2005 were provided by the NOAA Climatic Data Center.
5. The MSU Michigan Climatological Resources Program was the source of daily solar radiation data.
6. The EPA Permit Compliance System database offered a wide variety of chemical and physical data pertaining to point source dischargers in the watershed. This data was supplemented through direct contact with dischargers, including many water treatment plant officials.
7. Agricultural management practices were also considered when assessing the water quality in a watershed. Three generalized crop rotation schedules were used based upon data collected from the USDA's National Agricultural Statistics Service and through conversations with officials at the Lenawee Soil Conservation District.

### Soil and Water Assessment Tool continued...

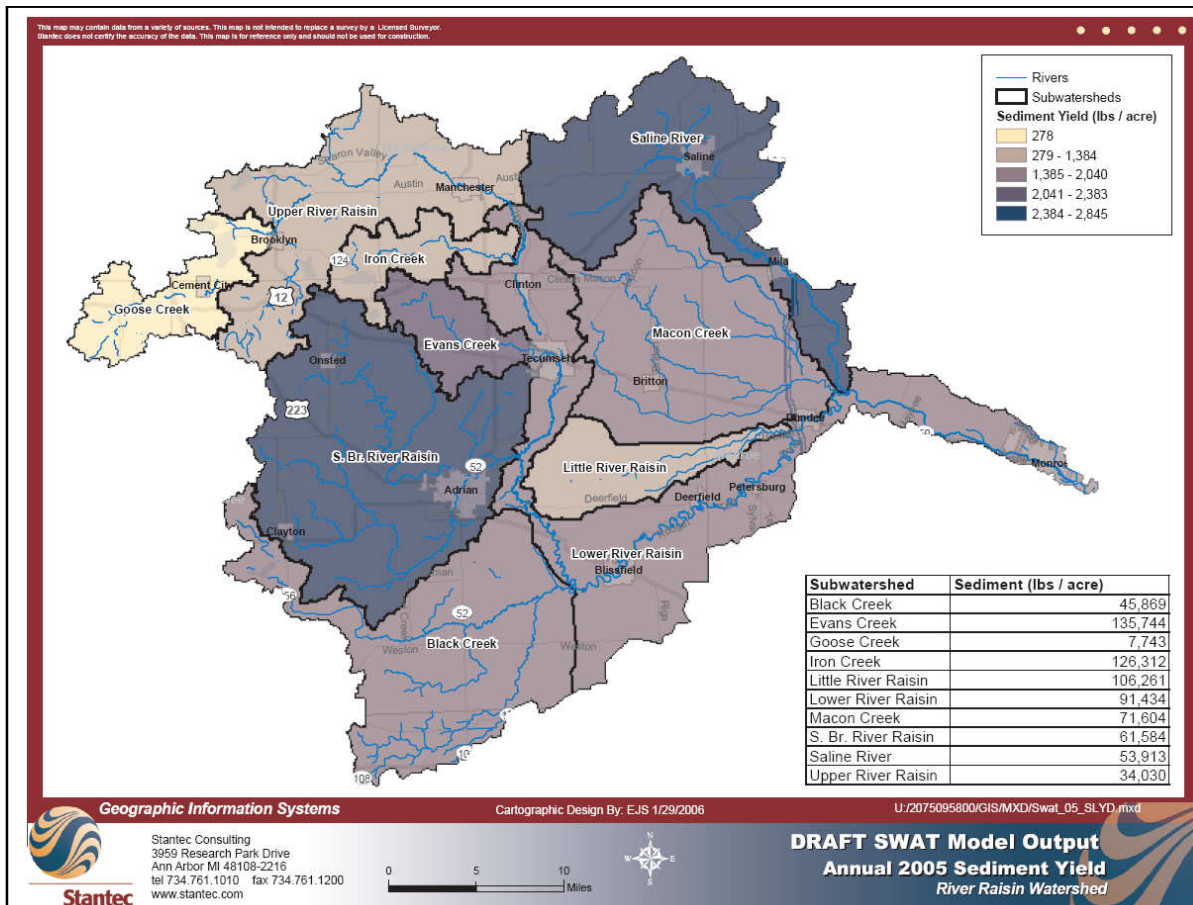
The accumulation of all collected data was integrated into the SWAT model, and the calibration phase was initiated. The SWAT model interpreted the input data, and the predicted results were compared to actual long-term data collected by USGS monitoring stations and water chemistry data from the Heidelberg College National Center for Water Quality Research. Locations included sites near Monroe, Manchester, and Adrian. The calibration process for the River Raisin SWAT model was modified and repeated dozens of times until the results of the model closely resembled the actual conditions that occurred at the known locations and times, therefore validating the model.

The validated SWAT model was used first to assist in prioritizing the sub watersheds for Best Management Practices (BMPs) implementation and then as a tool to quantify the benefit of various BMPs in the River Raisin Water-

shed. Installation of a 100 ft buffer strip, modifying fertilization/pesticide applications, and implementing conservation tillage scenarios were all input into different model runs for the River Raisin SWAT model. The benefit of conducting this type of analysis is that we are able to quantitatively estimate the benefit of one BMP with respect to others.

SWAT is one of the most technologically advanced watershed models available. To date, only one other watershed in Michigan has developed a SWAT model. Since all watersheds and subbasins are unique, the effectiveness of BMP's can vary greatly based upon physical conditions at implementation locations. SWAT provides a tool for assessing the effectiveness of BMP's at specific locations within the watershed. By using this tool, time and money can be saved by eliminating the application of ineffective management practices.

### Estimated Annual Sediment Yield by Subwatershed



In these scenarios for Evans Creek, the results show the best benefit with implementation of a 100 ft wide buffer strip.

### RRWC Sponsors Local Panel on Concentrated Animal Feeding Operations (CAFOs)

On October 23, the River Raisin Watershed Council (RRWC) sponsored a fact-finding panel on the controversial issue of Concentrated Animal Feeding Operations, commonly referred to by their acronym, CAFOs. As defined by the Environmental Protection Agency (EPA), Animal Feeding Operations (AFOs) are agricultural operations where animals are kept and raised in confined situations. AFOs generally congregate animals, feed, manure, urine, dead animals, and house production operations on a small area of land. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures. Animal waste and wastewater can enter water bodies from spills or breaks of waste storage structures (due to accidents or excessive rain), and non-agricultural application of manure to crop land. AFOs that meet the regulatory definition of a CAFO have the potential of being regulated under the National Pollutant Discharge Elimination System permitting program.

An AFO is a lot or facility (other than an aquatic animal production facility) where two conditions are met. (1) Animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and (2) crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

An operation must meet the definition of an AFO before it can be defined or designated as a CAFO. The EPA refers to the actual number of animals at the operation to define a CAFO.

In response to many requests from local stakeholders to investigate the often inflammatory information printed in the media about CAFOs and their impact on the environment, the RRWC launched an extensive investigation. Attention was focused on water quality. Committee members attended CAFO tours, met with Michigan Department of Environmental Quality CAFO and local agricultural experts, clipped articles, viewed videos, and learned more about the regulatory and legislative process involving CAFOs.

As part of the annual fall meeting, the RRWC was proud to present a panel of experts that showcased many facets of the CAFO issue in a professional, fair, and balanced manner. Written questions from the audience were answered by the speakers to conclude the program. Attendees were very impressed with the panel, making the evening a great success. The panel discussion was professionally recorded. A DVD, entitled "A Fact Finding Panel on Concentrated Animal Feeding Operations" is available for purchase using the order form below.

The RRWC would like to thank the speakers for their time and willingness to participate!

Greg Merricle  
Environmental Quality Analyst, MDEQ

Lynn Henning  
Sierra Club Water Sentinel

Tom Van Wagner  
Lenawee County District Conservationist

Stewart Bruinsma  
Owner, Bruinsma Dairy Farm

Senator Liz Brater  
18<sup>th</sup> District Michigan Senate

Order Form  
for  
A Fact Finding Panel on Concentrated Animal  
Feeding Operations DVD  
\$6 each (includes shipping)

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Number of DVDs ordered \_\_\_\_\_

Amount Enclosed \$ \_\_\_\_\_

## Land Use Controversies

Many communities in the River Raisin Watershed have experienced intense development in recent years. These developmental pressures will continue to be an issue for those areas already targeted and can also be expected to bleed into other parts of the watershed. While it is sometimes mystifying that developers continue to have the resources to expand at a time when local and state government budgets are stretched to the limit and sources of assistance are scarce and quickly disappearing, the issues created by development still need to be addressed at a local level. Many residents express concerns regarding how these developments affect their quality of life as well as pose contamination threats and density issues. Small units of governments are especially disadvantaged in proactively dealing with such issues when a national or multi-national corporation backs a proposed land use project with deep pockets and intense lobbying of local officials. State law has failed to adjust to the current challenges and has, in some cases, increased the disadvantage.

Intractable land use conflicts and controversies are inevitable, and communities often request that the River Raisin Watershed Council weigh in and take sides, by sending protest letters, resolutions, and critical analyses. Such local advocacy, to be credible, would require the Council to have staff with the time and expertise to research each case and present a well-formed position. At the present time, the organization does not have the available resources or number of staff that would be required to dedicate ourselves to such issues. The Council is currently and intensely working to complete the River Raisin Watershed Management Plan. We have also rolled out the Stewardship Program this year, expanded our Adopt-A-Stream program to include a spring and fall event, increased outreach, and are entering the home stretch with our latest educational watershed activity book. We recently sponsored a balanced panel on CAFOS (Concentrated Animal Feeding Operations) and will release a DVD of the program in the near future. Our plate is overflowing. We employ part time staff and have an executive committee who are volunteers and are generally not experts in the fields of aquatic biology, river hydrology, toxic waste management, or economics which would be necessary to prepare, present, and stand behind any type of critical analyses of local land use issues.

While an embattled member community might expect some form of symbolic support as a prerequisite of membership, the Council as a whole has not adopted local advocacy as

part of its mission or budget. As stated in the Bylaws, adopted in 2003, "The River Raisin Watershed Council is a statutory non-profit 501 © 3 public service organization sponsored by local governmental units, individuals, public interest groups and businesses, dedicated to the protection and improvement of the River Raisin Watershed through education, information, research, planning and action."

In 2006, the Council identified a top watershed protection goal: to develop and implement an EPA funded Watershed Management Plan. The Plan, when approved by the MDEQ/EPA in 2008, will form the basis for a range of action programs and will qualify participating member governments for future grant funding. By specifying recommended practices and necessary protections, the Plan may also identify needed legislative change to authorize and empower such practices at the local, state, and federal level. The Council will then have the opportunity to work with elected officials representing members, to present a well-researched case for changes that will benefit all communities in the watershed and provide the necessary blueprint for implementation funding. With the plan in place, the Council will have the opportunity to apply for funding in partnership with local municipalities to address these types of issues. The state and federal governments have stated that only watersheds with an approved watershed management plan will be eligible for funding and support.

The River Raisin Watershed Council would like to provide specific recommendations in the future. We would like to have the capability and resources to assist local municipalities in this capacity. We hope to become a clearinghouse for credible expertise in a variety of areas. It is our goal to apply for a grant to fulfill this once the River Raisin Watershed Management Plan is approved and implementation grants are available.

### Stewardship Grant Awarded by the RRWC

The River Raisin Watershed Council (RRWC) was one of ten organizations in Michigan to be awarded a Volunteer River, Stream, and Creek Cleanup Program (VRSCCP) grant from the Michigan Department of Environmental Quality and Great Lakes Commission. The VRSCCP provides small grants to help implement efforts to cleanup trash and debris in or along the banks of rivers, streams, and creeks to improve the waters in Michigan. The RRWC utilized the funds to create the *River Raisin Watershed Council Stewardship Mini-Grant Program* to support local volunteer efforts to clean up the River Raisin and its tributaries.

**Continued on page 11**

## Raisin Names

Have you ever wondered how many businesses, clubs, and establishments are named after the River Raisin? Well we did, so here they are!

Raisinville Township  
 Raisin Ridge Mobile Home Community  
 River Raisin Canoe Livery  
 River Raisin Raptor Center  
 The Raisin Pickers  
 River Raisin Center for the Arts  
 River Raisin Sportsman Club  
 Raisin River Golf Club  
 Raisin Valley Golf Course  
 Raisin Valley Insurance Agency  
 Raisin River Beads  
 River Bend Lawn and Landscape  
 River Park Plaza  
 River Raisin Apartments  
 River Raisin Collectables and Consignments  
 River Raisin Head Start  
 River Raisin Pet Supplies  
 River Raisin Veterinary Clinic  
 Riverfront Klipper  
 Riverfront Marina  
 Riverfront Party Store  
 River's Edge Business Interiors  
 River's Edge Pizza Pub and Grille  
 River Raisin Models  
 Riverbend Timber Framing Inc.  
 Rivers Bend Estates  
 Riverside Cemetery  
 Riverside Park  
 River Raisin Rag Time Review  
 Riverside Professional Building  
 Riverview Apartments  
 Raisin Center Friend's Church  
 Raisin Presbyterian Church of Holloway  
 Raisin Township  
 Raisin Valley Friends Church  
 River Raisin Cablevision  
 River Raisin Specialties  
 River Raisin Paper Company  
 River Raisin Restaurant  
 River Raisin National Farm Loan Association  
 River Raisin Charter #22 RAM  
 River Raisin Council #4 RSM  
 River Raisin Lumber Company  
 River Raisin Hotel  
 River Raisin Emporium Shopping Center  
 River Raisin Furniture and Waterbed Company  
 River Raisin Food Co-Op  
 Raisin Valley Title Company  
 River Raisin Employee Credit Union  
 Raisin River Country Club  
 River Raisin Vila Apartments  
 River Raisin Baseball Conference  
 River Raisin ENT  
 River Raisin Horseshoe Club  
 River Raisin Classic Canoe Race  
 River Raisin Jazz Festival  
 River Raisin Battlefield Visitors Center  
 River Raisin Brewing Company  
 River Raisin Guide Service

## Nan Weston Nature Preserve Field Trip

On May 10th, 2007 the River Raisin Watershed Council in partnership with The Nature Conservancy hosted a field trip to the Nan Weston Nature Preserve at Sharon Hollow. The purpose of the field trip was to give participants the opportunity to explore and learn about the Conservancy's preserves, conservation efforts, and the River Raisin Watershed Management Planning Process. Participants on this trip got the chance to view rare and beautiful wildflowers in bloom while on a walk through the woods to the banks of the River Raisin.



Field Trip Group



Trillium

## Rare Plant Found at Ives Road Fen Preserve

From: The Nature Conservancy, August 2007 (edited for length)

The rediscovery of heartleaf skullcap in Michigan, at The Nature Conservancy's Ives Road Fen Preserve, demonstrates the necessity for continued land protection and habitat preservation. The flowering plant evaded Michigan botanists for almost 90 years, until Bob Smith located the species during a routine preserve survey.



Heartleaf skullcap

©(Daniel Reed) [www.2bnthewild.com](http://www.2bnthewild.com)

"This sighting reaffirms the vital role that habitat restoration and preservation plays in Michigan," said Dr. Patrick Doran, director of science for The Nature Conservancy in Michigan. "It's thrilling to know that the hard work of our volunteers and land stewards is making a difference." The plant resides in many southern and eastern states, but was only spotted in Michigan once before, in 1918. Scientists say that the skullcap's rediscovery points to the importance of increasing protected land in Michigan.

**Environmental Poetry and Art Contest**—The River Raisin Watershed Council would like to help spread the news about the 2008 Annual Environmental Poetry and Art Contest. This is a K-12 contest that focuses specifically on watersheds. The contest is designed to help youth explore the natural and cultural history of the place they live, and to express, through poetry and art, what they discover. For more information, please visit their Michigan website at: <http://riverofword.composing.org/> Please note that for Michigan contestants, art or poetry entries must be made by January 15, 2008.

## Boy Scouts Clean Up!

The Monroe County Boy Scout Canoe Clean-up of the River Raisin took place on Saturday, September 8, 2007. The 5th year annual Boy Scout Canoe Clean-up went great! Five Scout Troops participated in the dirty job and did a wonderful job picking up other peoples trash. Some



2007 Monroe County Boy Scout Group

60 scouts and adult leaders had perfect weather for the event and removed loads of junk from the river. This year, the scouts separated the metal from

the rest of the trash in order to recycle it. Stonco was a major sponsor and also provided hot dogs and chips for the lunch. Others sponsors included: Monroe Solid Waste Program, Monroe County Community Credit Union, Miller Canfield Paddock & Stone, DTE Energy, Tyson J. Rothlisberger DDS, Stantec Consulting,



Metal was separated for recycling.



Trash collected by the Boy Scouts.

60 scouts and adult leaders had perfect weather for the event and removed loads of junk from the river. This year, the scouts separated the metal from

the rest of the trash in order to recycle it. Stonco was a major sponsor and also provided hot dogs and chips for the lunch. Others sponsors included: Monroe Solid Waste Program, Monroe County Community Credit Union, Miller Canfield Paddock & Stone, DTE Energy, Tyson J. Rothlisberger DDS, Stantec Consulting,

Kiwanis Club of Monroe, La-Z-Boy, and MBT. The scouts should be commended for their participation in this clean-up event and their willingness to devote time to such an important cause.

## Total Maximum Daily Loads (TMDLs)

You may have heard the acronym, TMDL, used before when talking about water quality issues. TMDL stands for Total Maximum Daily Load and it is the maximum amount of a certain pollutant that a waterbody can receive and still meet water quality standards.

Water quality standards identify the uses for each waterbody. Drinking water supply, contact recreation, and aquatic life support are possible use designations. A TMDL is set for each pollutant that enters a waterbody based on these water quality standards set by the state. Sediment, nutrients, and metals are just some examples of pollutants that have approved TMDLs (US EPA). A TMDL accounts for the sum of allowable loads of a single pollutant from all contributing point and nonpoint sources (US EPA). Point source pollution is pollution that can be traced back to a specific point, such as an industrial discharge pipe. Nonpoint source pollution is much harder to trace back to its source because it is usually diffuse and comes from a number of places, for example, urban fertilizer runoff.

Waterbodies that do not meet set water quality standards are required to be listed as "impaired waters" under section 303(d) of the 1972 Clean Water Act. It is estimated that 40% of streams, 45% of lakes, and half of the estuaries in the United States are too polluted to meet their water quality standards and designated uses ([www.stormh2o.com](http://www.stormh2o.com)).

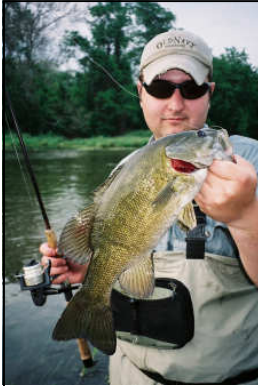
The establishment of TMDLs is important because they identify what needs to be done in order to achieve water quality. Total Maximum Daily Loads identify the pollutant reductions that need to occur in order to improve water quality in our nations water bodies and meet set state standards.

### Stewardship Grant - continued from page 9

The goal of the program is to raise awareness of and involvement in the preservation of our water resources and increase the aesthetic beauty of our water corridors while helping to improve overall water quality. The program provides guidance and monetary support for projects in the River Raisin Watershed. The RRWC awarded mini-grants for the Monroe Boy Scouts Canoe Clean Up, the River Raisin Greenway Project, Evans Creek Clean Up Project, Manchester Men's Club Clean Up, Manchester Legion Clean Up, Manchester Boy Scouts Clean Up, and Manchester Eagle Scouts.

## River Raisin Guide Service

The River Raisin Guide Service is the only fishing Guide Service on the River Raisin. Justin Clark, guide for the River Raisin Guide Service, has been fishing the waters of the Raisin for years. Clark and his crew use Fly and Spin tackle to search for Smallmouth bass on the River Raisin. Clark is an avid fly fisherman of this area and has developed a Smallmouth fly called the Raisin Minnow. According to him, the fly is “a very simple fly to tie but yet its very effective.” It took him about a year and a half to perfect this fly specifically for the River Raisin and he was kind enough to show us how to tie them.



Justin Clark with a Smallmouth bass caught on the River Raisin.

### RAISIN MINNOW

Here is what you'll need:

Size 6 Mustad (S71S SS, or 3407DT)

3/0 thread or any large strong thread used on streamers (White)

White or Pearl Lead Eyes (Med for deeper or faster water, SM for summer time, or low water times)

Black Flashabou Accent

3D EP Fibers (Golden Olive 3-D, White)

White Rabbit Zonker Strips (1/8 inch)

#### Step 1:

Lay a base layer of thread on the shank of the hook. Go all the way to the point of the hook.

#### Step 2:

Tie on your eyes - figure eight around them until they are firmly in place and then lock them in by wrapping under the eyes and over the shank.

#### Step 3:

Lay the Zonker Strip Hair down across the eyes and tie the end of the strip to the shank of the hook. Make sure that your wraps are as close to the eyes as they can be.

#### Step 4:

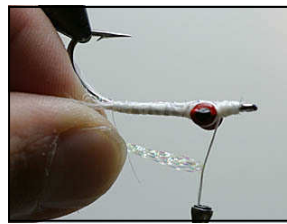
Fold the strip over the wraps that you just made and wrap over them again – push those wraps up and into the eyes.

#### Step 5:

Tie in some White EP Fibers ahead of the eyes – just like you would on a Clouser minnow.

#### Step 6:

Now flip the fly over and tie in your Flashabou. (See picture below – wrapping the Flashabou in this way will ensure that it holds and will not slip out).



#### Step 7:

Tie in the Olive EP Fibers just like you would tie in the top color on a Clouser. Tie off your thread and use whatever glue or finish you want to hold the thread, on the front

of the fly.

The River Raisin Guide Service is a catch and release guide service. For more information, you can visit their website [www.raisinmallies.com](http://www.raisinmallies.com).



A Smallmouth taken on the Raisin Minnow.



Picture of the fly when finished.

## The Raisin Pickers

If you live in the River Raisin Watershed, you may have heard of a well-known string band who call themselves The Raisin Pickers. The group from Manchester, Michigan tours the Midwest and Canada playing at numerous festivals each year. In 2002, the band launched the “River Folk Festival” which has been an annual event in

Manchester ever since. Band members include Mark Palms (clawhammer banjo, guitar, and vocals), Carol Palms (upright bass, fiddle, and vocals), and David Mosher (mandolin, fiddle, guitar, and vocals).

For more information about the group, check out their website at [www.raisinpicker.com](http://www.raisinpicker.com).

## Preliminary Adopt-A-Stream Data Analysis

By Dr. Jim Martin Ph.D.

We are now entering our sixth year of collecting and sorting stream insects to the family level. We started with 13 sites across the watershed. In the last few years we have expanded that number to 20, from the headwaters and various sub-watersheds to the mouth of the river.

The Michigan Clean Water Corp (MiCorps) produces a data sheet that gives us the ability to compare our invertebrate fauna with other streams (<http://www.micorps.net/>). Streams are classified into one of four categories according to the type and diversity of stream invertebrates recovered during a stream search (poor, fair, good and excellent). Rating results for macroinvertebrate data collected during our spring and fall 2007 stream searches can be seen in figure 1. Each site was given a rating based on the MiCorp value it received after the macroinvertebrates collected at that site were identified. Of special interest is that two of our upriver sites have scored into the 'excellent' category this last fall for the first time.

Using the MiCorp index and averaging all of our sites for a given year gives an average stream health for the entire watershed (table 1). The results suggest that, at least a gross level, the river is in not as healthy as it was when this monitoring program was first established. The decline remains even when the newer sites are excluded. There are most likely multiple causes for this decline.

Year sampled	Average rating	MiCorp value
Spring 2002	'good'	35.4
Spring 2003	'good'	34.1
Spring 2004	'fair'	26.2
Spring 2005	'fair'	28.1
Spring 2006	'fair'	20.5
Fall 2006	'fair'	27.6
Spring 2007	'fair'	27.7
Fall 2007	'fair'	31.9

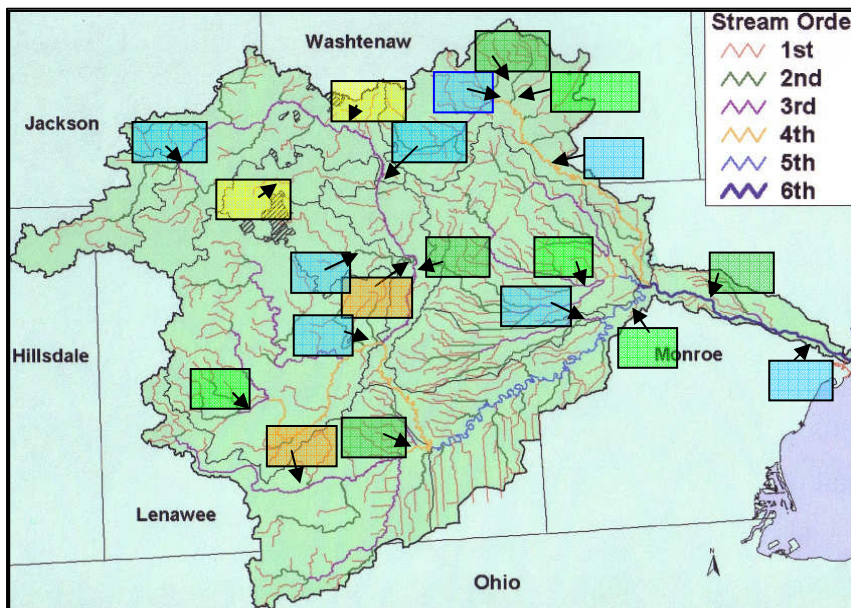


Figure 1. MiCorp Index Rating for Fall 2007: average rating "fair" (average MiCorp value = 31.9) Yellow=Excellent Blue=Good Green=Fair

Looking at the data for the individual sites through the years, three different patterns emerge: stable, erratic and declining. The Upper Raisin has been relatively stable through the sampling, even showing an uptick in the rating scale the last several stream searches. The Lower Raisin (Dundee, Monroe, and a site in-between) started with ratings in the 'good' category, though by 2005 and 2006 these sites had declined into the 'fair' to 'poor' category. It is unclear why this decline has occurred, though variance in sample size may be at least partly responsible. However, in our most recent sampling this last fall our site closest to the mouth of the river edged into the 'good' range, and the other two sites just up river were well into the 'fair' range. An erratic (up and down) pattern is observed at some of the other sites through time. This pattern is less worri-

some than a decline, but the cause of the variance needs to be identified. We are now beginning to generate enough data to spot anomalies for particular sites. In the coming years if an uncharacteristically low index score is returned for a particular site we will go back and resample that site. We will also examine stream search results against some variables that should assist our understanding of the changes we are observing. Obvious variables that we should examine include variance in collector training, the depth and speed of the river on a given stream search day, and site selection criteria. Further, one of my goals for the 2008 sample season is to revisit sites that have been reporting below average aquatic invertebrate collections and consider factors other than the above mentioned that may be contributing to our observed results.

## Lawn Care: Fertilizers, Pesticides, and Your Watershed

By: Aistis Tumas

A healthy green lawn is an important asset to many homeowners: the perfect place for a summer grill-out or a laid back game of soccer. However, how we choose to take care of our lawns can have serious environmental consequences.

For example, homeowners often use large amounts of fertilizers and pesticides – the average homeowner applies ten times the amount of these products per unit area compared to the average farmer. This overuse doesn't lead to greener lawns. Not only is it more expensive to use more fertilizers and pesticides, but these products can end up in groundwater and storm water runoff.

When fertilizers and pesticides enter our watersheds, it can damage the health of our streams, rivers and lakes, as well as the ecosystems they harbor. For example, when nitrogen and phosphorous fertilizers end up in excess levels in lakes from runoff, it can cause the lake to become choked with algae and excess plant growth, which in turn depletes dissolved oxygen and makes it harder for many species of aquatic animals to survive. Responsible use of fertilizers and pesticides by homeowners is an important step in maintaining the natural balance of these aquatic ecosystems.

A few simple steps can help homeowners maintain a healthy, green lawn while improving fertilizer and pesticide use:

**Get your soil tested.** Different soil types need different amounts of nitrogen, phosphorous, and potassium nutrients. An inexpensive soil test from your county's Michigan State University Extension office will give you a detailed profile of your lawn's fertilizer requirements. You can then apply the appropriate amounts, leading to both a healthier lawn and environment.

**Know the exact size of your lawn.** Measure your lawn to calculate its total area. That way, you can know the exact amount of fertilizers and pesticides needed to treat your lawn, preventing overuse.

**Avoid wells and surface water.** Avoid applying lawn care products within at least 10 feet of any body of surface water, and as far as possible from a well.

**Read labels.** Read the entire label of your fertilizers

and pesticides to make sure you are using, storing, and disposing of them correctly. Contact your county's solid waste program to find out the location of hazardous household waste collection sites.

**A seasonal tip for fertilizing in fall:** If you choose to fertilize in the fall (called dormant feeding), target your application to late fall, when the grass has stopped growing but before the ground is frozen. After the ground is frozen, it doesn't help to fertilize your lawn. The fertilizer is more likely to be washed away as runoff, which both wastes money and is bad for your watershed.

Even if you have a small lawn, remember that the indiscriminate use of fertilizers and pesticides by thousands of homeowners can really add up. Additional information about lawn and garden care is available *free* from the Michigan Groundwater Stewardship Program (MGSP). The goal of the MGSP is to raise awareness about the ways in which groundwater can become contaminated and the choices all of us can make to prevent it from happening.

MGSP provides free educational programs to schools, businesses, and community groups of all kinds and sizes. Topics covered include groundwater basics, yard and garden care, well and septic system management, and management of household trash and hazardous materials.

Additionally, MGSP offers voluntary, free, and confidential home-site assessments called Home\*A\*Systs. A one-on-one Home\*A\*Syst with a MGSP trained volunteer can take as little as an hour, and is a good way to identify health and environmental risks around your home. To schedule a presentation or Home\*A\*Syst, contact Aistis Tumas, your local MGSP groundwater educator, at (734)761-6721 Ext. 101, or by e-mail at [TumasA@michigan.gov](mailto:TumasA@michigan.gov).

Agricultural producers can learn about a free and confidential farm assessment or cost share program for closing abandoned wells in agricultural areas by contacting Amy Gilhouse, MGSP Groundwater Technician, at (517)263-7400 Ext. 117, or by e-mail at [amy.gilhouse@mi.nacdnet.net](mailto:amy.gilhouse@mi.nacdnet.net).

The MGSP is a service of the Washtenaw, Monroe, and Lenawee Conservation Districts, which are local units of state government, assisting private landowners, businesses and others, with the conservation and management of their natural resources. Each District is an equal opportunity provider and employer.

## Concerns Rise Over Mute Swan Population

Most people who have been outdoors and take walks near the River Raisin have probably seen swans. What many people may not know is that the swans they see are most likely the invasive Mute Swan (*Cygnus olor*) rather than the native Trumpeter or Tundra swan. The Mute Swan is originally from Britain and was introduced to the United States in the 1800's. Its aggressiveness and successful reproduction has made it the most common swan in the wild. The Mute Swan can be distinguished from native swans by its orange colored bill with a black fleshy knob at the base of the upper bill, and by the way it holds its neck in a graceful curve when swimming. In contrast, Trumpeter and Tundra Swans have black bills and do not curve their necks when swimming.



This picture of a pair of Mute Swans was taken on January 30, 2007 in Manchester.

Mute Swans are usually non-migratory and occupy a territory of 4 to 10 acres of ponds, lakes, marshes, or river systems. They impact their habitat most by over grazing the aquatic vegetation. They also eat aquatic insects, fish, and frogs. However, they pose another threat to indigenous wildlife such as ducks, common loons, and native swans through extreme competition for food, territory and nesting sites. There have been rising incidences of Mute Swan – human conflict during swimming, boating, and fishing activities. Mute Swans have even been known to knock jet skiers off their watercraft and to attack children and pets.

Michigan is in the Mississippi Flyway, where numbers of Mute Swans are more than 3,600 with the greatest number being in Michigan. As of right now there is no protection for the Mute Swan under Federal migratory bird regulations; however, like all swans, they are protected in Canada under the Migratory Birds Convention Act. On the state level, some states protect them while others do not. Control measures have taken place on state lands in Michigan, Ohio, and Wisconsin on a selective basis. A uniform policy for Mute Swan management is needed to implement measures to control further population growth and expansion of this invasive species. The next time you see a swan, check out its characteristics. Chances are, it's the bully of the swan world.

Credits: Mute Swan Populations, Distribution and Management Issues in the United States and Canada. Harvey K. Nelson and University of Michigan Museum of Zoology- Animal Diversity.

By Kara Tecco

## River Raisin Tanker

The River Raisin tanker was built by the Kaiser Company, Portland Oregon in June 1943. 481 of these types of tankers were built over very short production spans between 1942 and 1945. Ships of this design were 523 feet long and could carry around 10,000 tons of cargo. Most of these ships were built to transport liquid cargo such as gasoline, oil, and molasses. During World War II, American tankers made 6,500 voyages to carry 65 million tons of oil and gasoline from the U.S. and the Caribbean to the war zones and to our Allies. They supplied 80% of the fuel used by bombers, tanks, jeeps, and ships during the War.

The River Raisin Watershed Council cannot verify that the tanker was named after our River Raisin.



Photo and tank information courtesy of the Australian War Memorial.

## Dashing Darters

By: Kara Tecco

Darters are small fish that belong to the Perch family, and are seldom seen by most people. The orangethroat darter deserves special attention because it is unique to the River Raisin Watershed and has not yet been found anywhere else in Michigan. The orangethroat darter gets its name from the bright orange gills and throat of the male fish. The male breeding colors are beautiful, with repeating brick red and metallic blue bars on its side. Bright blue and orange-red bands are seen on the first dorsal fin, along with blue-green coloration on its anal fin. The body of the female is a dull olive color with tinges of blue and orange. The adult darter reaches a length of no more than 3 inches and is stout in shape. Like other darters, they lack a swim bladder and must dart along the stream bottom.

The habitat for the orangethroat darter is that of small streams or lakes that have bottoms composed of a mix of sand and gravel. They occupy riffles and pools and are somewhat tolerant of turbidity but prefer clear, warm, alkaline waters. Their diet consists of chironomids, caddisflies, and other insect larvae as well as fish eggs.

Adult orangethroats spawn in March or April. They are widely distributed in the United States, but are rare and considered of special concern in some states, including Michigan. With this in mind, the question arises as to why the orangethroat darter thrives in the

River Raisin watershed, but is not known to exist elsewhere in the Great Lakes State. Does this watershed offer a par-



Black dots indicate the locations orangethroat darters have been observed in Michigan.

Map from the Center for Geographic Information: Michigan Fish Atlas Maps.

ticular habitat and food preferred by this species, or is it the unique temperature and turbidity of the watershed that help orangethroat darters survive? Whatever the case may be, we must try to do our part in keeping the watershed healthy so this unique species may continue to thrive in the River Raisin Watershed.

Credits: Illinois Natural History Survey, Wyoming DNR, and MDNR.



Mary Lirones was awarded the George A. Anderson Vision Award

## Board Member Mary Lirones Awarded

Mary Lirones, Saline's representative on the River Raisin Watershed Council, was honored by Saline area residents, business people, and community leaders. This committee awarded Lirones with the George A. Anderson Vision Award. Lirones has long been active in advocating the

River Raisin Watershed water quality." and its wetlands.

Lirones feels it is important for all units of governments to be involved in their watershed's issues by paying dues and sending representatives to meetings. She is also frustrated by "how blasé many units of government are towards

Mary Lirones serves on the Parks Commission and is also a member of the Saline Area Historical Society and a past member of the Environmental Council.

Congratulations!

# Fun Page

## What are Wetlands?

Wetlands are places where land meets water and the two combine to make a unique habitat. Sometimes wetlands are dry and other times they are wet. Wetlands get a lot of nutrients from the land and so they are able to grow many unique plants. Animals use these plants for food and as places to live.



American Wetlands  
Logo, U.S. E.P.A.

## Wetland Animal Word Search

Search for the types of animals found in wetlands. See if you can find:

- |           |          |           |        |        |            |
|-----------|----------|-----------|--------|--------|------------|
| beaver    | flounder | wood duck | clam   | crab   | crayfish   |
| mosquito  | raccoon  | heron     | bear   | frog   | egret      |
| dragonfly | sunfish  | mink      | turtle | shrimp | salamander |

A	O	O	T	X	B	Z	T	D	A	Q	L	X	A	T	L	M
T	H	C	U	W	O	O	D	D	U	C	K	X	T	S	X	C
B	E	L	R	A	C	C	S	T	C	R	A	B	T	F	O	R
C	R	T	T	S	M	I	N	K	F	G	C	G	F	B	S	A
S	O	N	L	T	S	S	M	O	S	Q	U	I	T	O	U	Y
B	N	T	E	O	Q	R	S	T	A	O	C	U	X	N	N	F
E	L	R	T	S	O	P	X	P	P	A	B	E	A	R	F	I
A	C	C	X	T	S	H	R	I	M	P	L	L	N	A	I	S
V	D	R	A	G	O	N	F	L	Y	N	T	S	S	C	S	H
E	T	V	V	U	Q	Q	R	L	U	I	V	I	L	C	H	O
R	E	G	R	E	T	X	O	T	V	N	Z	A	T	O	X	O
V	X	S	G	N	A	Z	G	X	T	V	M	V	S	O	A	O
X	S	A	L	A	M	A	N	D	E	R	N	Q	X	N	N	L
N	L	T	F	L	O	U	N	D	E	R	L	I	T	T	O	L

Word search borrowed from <http://www.epa.gov/owow/wetlands/education/#activities>

## Wish List

The River Raisin Watershed Council is always grateful for donations. Here are some things we could use:

Copy Paper (white, 8 1/2 x 11, recycled)

Envelopes (white business size and manila 9 x 12 self-seal)

Labels (white 2 5/8 x 1" and 2 1/3 x 3 3/8)

Pocket Folders

Stamps

Paper Towels

Toilet Tissue

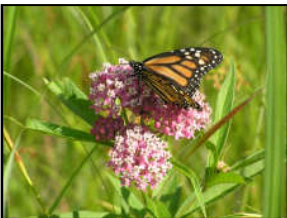
Facial Tissue

Hand Soap (pump)

New Computer

Shed

Reams of 60lb paper



These pictures of a Monarch caterpillar and Monarch butterfly were taken next to Hedi Kaufman's pond. Hedi is a member of the Executive Committee.

### Kara - Continued from front page

together. Kara just radiated joy recounting the fun they had. Graham said that "whenever anything involved nature and the outdoors, she always approached it with a passion. I was always impressed that she was perfectly content to sit in a canoe for six to eight hours, whether or not we were catching many fish!" Kara loved being outdoors. She was in her element. She influenced so many by just being herself. It is impossible to know how many lives she touched but I am sure that her love of nature will be carried on by all who knew her. She made a difference.



Kara was the Adopt-A-Stream Coordinator and greatly improved the program.

I loved Kara's smile and laugh. She was so childlike and pure in her happiness. Small things made her happy- her flash drive for one! That was one of the reasons she was so ideally suited to her chosen profession. Many believe that in order to make a difference in the environment, they need to make huge changes in their lives. On the contrary, it is the small things that each and every one of us can do to collectively make a huge difference. Recycle, turn down the thermostat a few degrees, use less lawn fertilizer, turn off the water while brushing your teeth, use a rain barrel, compost, buy energy efficient light bulbs, only run the dishwasher when full, buy environmentally friendly products, dispose of household hazardous waste

properly, properly maintain your septic tank, or plant a few trees. I challenge each and every one of you reading this to honor Kara's memory by incorporating a small environmental change into your life. I believe this is something that Kara would appreciate. You can make a difference. Kara made a difference.

Kara is survived by her parents, Thomas and Betty (Gleason) Tecco. In addition, she is survived by her brother, Ryan Tecco, of San Francisco, California; grandmothers Elizabeth Gleason and Betty Jane Tecco, both of Grafton, Ohio; uncles and aunts, Robert and Bonnie Smigelski of Waterville, Ohio; Ken and Brenda Yuronich of Grafton, Ohio, and Richard and Joanne Merker of Clifton, Virginia and by cousins, Steve and David Smigelski; Greg and Brad Yuronich, and Brett Merker. She is also survived by her boyfriend, Graham Lewis of Saline. Kara will continue on through her organ donation to Gift of Life. A memorial service will be held next year in the spring or summer. In lieu of flowers, the family requests contributions in her name be made to the River Raisin Watershed Council.

It is difficult to fathom why someone so young and in her prime departs so suddenly from this life. Words seem so inadequate. Kara was more about action; working in the field, experiencing the joys of the great outdoors, and dedicating her life to environmental study and improvement. There are many things Kara stood for in her life. Each person she touched will have their own special memories of her to cherish and hold dear. Each person will honor her memory in a way they feel comfortable and appropriate. She was a special, talented, and warm human being, one that I feel particularly privileged to have known. I will never forget Kara. She made a difference.

By Gayle Mitchell

**MANY THANKS TO THOSE WHO HAVE VOLUNTEERED THEIR TIME AND DONATED SUPPLIES:**

- \* Jan BenDor      \* Washtenaw County Drain Commission      \* Ron Mann      \* Mary Lirones
- \* Pat Sanders    \* Monroe Charter Township                      \* Gail Dunaway      \* Jim Wonacott
- \* Jim Kellie       \* Lynn and Walter Wilson                        \* WashtenawCounty   \* Pittsfield Township
- \* John Farmer    \* Rollin Township                                    \* Nancy Smith       \* Dr. Lee Kettren
- \* Pelham Storage \* Summerfield Township                        \* Judy Holcomb      \* Don Secord
- \* Hedi Kaufman \* City of Petersburg—Leroy Burguard       \* Jason Rice         \* Joyce Drake
- \* John Kilby— Adrian Plumbing and Heating

**The River Raisin Watershed Council invites you to join our membership!**

*YES, I want to help the River Raisin Watershed Council protect, restore and sustain the River Raisin Basin; its wetlands, lakes, river and tributaries! Here are my 2008 membership dues:*

- \_\_\_\_\_ \$ 1,000+      White-tailed Deer
- \_\_\_\_\_ \$ 500-999      Great Blue Heron
- \_\_\_\_\_ \$ 250-499      American Robin
- \_\_\_\_\_ \$ 100-249      Northern Spring Peeper
- \_\_\_\_\_ \$ 50-99      Emerald Shiner
- \_\_\_\_\_ \$ 30-49      Mayfly

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ E-mail \_\_\_\_\_

*Renew or join at \$50 and above and receive a RRWC hat!*

*Memberships of \$250+ will receive a special plaque!*

*All donors will be recognized.*

**THANK YOU FOR YOUR SUPPORT!**

*“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.” --- Margaret Mead*

*...to inspire behaviors that enhance and sustain the River Raisin*



1042 Sutton Rd., Suite #3  
Adrian, MI 49221

*Stamp*

*Address of recipient*

## Upcoming Meetings and Events

All meetings and events can also be found on our website at [www.riverraisin.org](http://www.riverraisin.org).

<b>DATE</b>	<b>MEETING OR EVENT</b>	<b>TIME</b>	<b>LOCATION</b>
April 12, 2008	Adopt-A-Stream Captain / Collectors Training	9am - 1pm	Adrian College
April 26, 2008	Adopt-A-Stream Spring 2008 Stream Search	9am - 2pm	3 Locations
May 10, 2008	Adopt-A-Stream Bug ID Day	9am - 1pm	Adrian College
September 27, 2008	Adopt-A-Stream Fall Stream Search	9am—2 pm	Adrian College
October 11, 2008	Adopt-A-Stream Fall Bug ID Day	9am—1 pm	Adrian College
October 28, 2008	Tentative Fall Meeting Dinner	6pm—8pm	Stubnitz Center