TURTLE TRACKS
SPRING 2005 EDITION

OFFICIAL NEWSLETTER OF THE TURTLE CREEK WATERSHED ASSOCIATION

Water Quality Indicators

Stream Organisms Provide Clues

One of the best methods of determining stream health is to look at the organisms within it. Different families, genera, and species have different survival conditions and requirements. Some are more tolerant of polluted waters than others. Consequently, the range of organisms and the types found in a stream provide a good reflection of what is occurring in it.

This is of practical value when performing invertebrate studies for stream assessments, such as the one done in Turtle Creek in Duff Park in preparation for the streambank restoration project sponsored by Levin Furniture.

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Stonefly nymph

Due to get underway this spring, on-going erosion of the channel now threatening the Funk Bikeway will be halted by use of natural materials to mimic normal stream channel stabilizing mechanisms and to duplicate natural habitats.

As demonstrated in the photos, insect nymphs and larvae (benthic macroinvertebrates) dwelling on stream bottoms show a variety of marvelous adaptations for that environment. Needing oxygen-rich water, they live in shallow riffle areas where turbulence traps lots of air. External feathery gills found on their abdomens, necks, or legs allow for ample gas exchange across their surfaces. Bodies tend to be flattened and feet have claw-like projections to facilitate crawling on stream bottoms against the current. Many caddisflies form cases out of small stones, sticks, shells, or other available materials to surround their soft bodies.

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Mayfly nymph

Depending upon major food source, mouth parts and eyes show varied adaptations. Predators have large eyes and heavy jaws. Detrivores feed on decaying plant and animal tissues by shredding, scraping, or filtering with mouth structures accommodating each method.

Although each type of organism responds to contaminants in different ways, general classifications become evident.

(continued on page 2)

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Caddisfly larva

For example, Class I organisms, such as stoneflies, mayflies, and caddisflies are "sensitive" or "intolerant. When numbers of these are present, water quality and habitat are good. Class II organisms, such as dragonflies, craneflies, and crayfish are "facultative," able to live in moderately polluted conditions. Class III includes snails, midges, and worms – all rather "tolerant" of pollution. Finding only Class III invertebrates indicates impacted water.

The invertebrate survey conducted in Duff Park showed very few organisms at all, and those were Class II or III - an expected outcome due to mine drainage contamination.

Similar lists for fish species are also used for assessment processes. In an unexpected Duff Park outcome, even though there were few invertebrates – the major food source for fish, there were a surprising number of species and individual fish found. None was "intolerant," but some of these were moderately tolerant. This finding supports the idea that with decreased erosion and sedimentation, increased habitat, and improved water quality, trout stocking by the Fish and Boat Commission may be on the horizon.

Project Updates

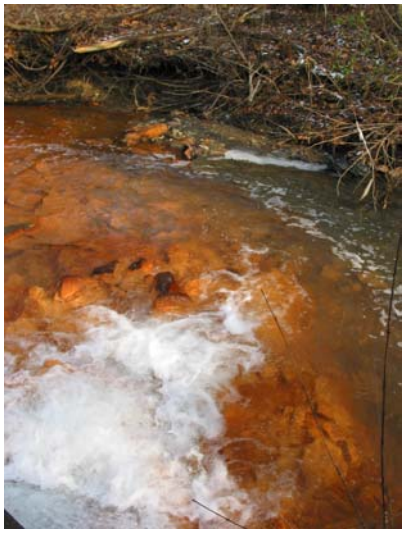
Abandoned Mine Drainage

1. The Borland Farm Road Project to clean the Delmont Mine discharge is now under review by the Bureau of Abandoned Mine Reclamation. Monitoring well data show the aluminum levels are too high to use the anoxic limestone drain system originally envisioned. However, the site appears to be a good opportunity for use of an upslope treatment system.

CME Engineering is now working on a concept plan. Once this is finished, a meeting of all involved parties will determine the next steps.

2. A Growing Greener Grant application was submitted to DEP for the subsurface evaluation and design phase of the Export Mine Discharge. While the program has few funds for this round, the application also makes the project eligible for other funding sources.

3. The Westmoreland County Industrial Development Corporation received a Growing Greener Grant last year to study the Irwin Discharge along Tinker's Run with the intent to remediate it in a way that turns the normally occurring iron hydroxide paste into marketable iron oxide. Hedin Environmental is performing the work. So far, some promising alternatives have been identified, and each of these must be evaluated. Once the study is complete, then more research will be required before a design can be developed. Other partners will benefit the project.



Irwin Discharge

Streambank Stabilization

1. The Duff Park stabilization sponsored by Levin Furniture is ready to move as soon as the weather breaks. A good supply of natural materials such as boulders, log sections, and tree root wads have been stockpiled. Last year's flooding resulted in the need for an updated design and an increase in the amount of materials required. New equipment will be available, minimizing the amount of work done from the streambed.

The Bear Hollow segment of the Levin Project needs some more permit work. However, it also should be completed this summer.

Inter-Municipal Environmental Forum

1. Municipalities are facing implementation of the six minimum control measures for the MS4 portion of the new NPDES Phase II program. One of these measures requires the screening of all outfalls still running 72 hours after a rain event. This screening process is designed to distinguish among ground water, mine water, and illicit discharges from various sources. To reduce any financial burden to communities, the DEP determined that simple test kits could be used by municipal staff to perform screening.

(continued on page 3)

Project Updates (con't.)

As a way to familiarize these people with the kits and procedures, IMEF, in conjunction with the Center for Environmental Research and Education at Duquesne University, is offering in the field assistance with the first year's requirements. So far, nine communities have signed up for the service.

With our support, the Local Government Academy held two workshops for municipal officials and staff to clarify many of the MS4 provisions and explain exactly what is required. Seminars for municipal solicitors and engineers are planned.

Work to evaluate the municipal surveys is ongoing. Once that is completed, meetings will be scheduled to actively involve municipalities in the search for broad solutions to some of the watershed's problems

Calendar

TCWA meetings

Room 220, The Castle, 7:00 p.m.

March 29th

April 26th

May 31st

June 28th

Trout Stocking

12:45 p.m. Wednesday, April 13th for pre-season stocking - **if water quality permits**

as yet undetermined date during the week of April 25th for in-season stocking - **if water quality permits**

Fun Day

Tentatively TCWA and the Trafford Sportsmen's Club will be hosting the children's fishing tournament at B-Y Pond on June 5th (an official Fish for Free Day). In addition to the fishing-related prizes for age groups, we hope to include more games and activities than ever before. The sportsmen will offer demonstrations and instruction for tracking and archery. With luck, we'll also have a story-teller to entertain children of all ages.

Invasive Species

Aquatic and Wetland Plants

As summer approaches, the issues surrounding invasive plant species once again arise. Two examples shown here are typical of the problems posed. Knotweed is a very beautiful plant with bamboo-like stems, heart-shaped leaves, and clouds of delicate white flowers. It can thrive in places where other landscaping plants fail. However, like other invasives, it can be too successful - spreading rampantly and pushing out native species upon which wildlife depends for food, cover, and nesting sites. Having an extensive root system, but not many fibrous roots, knotweed, which is often found on streambanks, cannot hold bank material in place as well as the native species it displaces. Erosion becomes more likely.

Japanese Knotweed (*Polygonum cuspidatum*)

Purple Loosestrife (Lythrum salarica)

Like knotweed, purple loosestrife is another non-native, prolific seed producer that is stunningly beautiful. Free from diseases and pests, it too spreads unchecked, displacing natives and reducing available habitat.

By working with state agency personnel, effective management plans can be developed and implemented to reduce impacts.

Join Us!!! Become a member of the Turtle Creek Watershed Association and become a partner in a dynamic local conservation effort. A broad base of financial and volunteer support from local individuals, families, communities, business, and industry will allow all of us together continue improving the quality of life in this region.

(Don't forget - it's tax deductible!)

Membership Form 2005

Name: _____

Address: _____

_____

E-mail: _____

Phone: _____ (h)

_____ (w)

Permission to list donor name: ☐ Yes ☐ No

☐ Individual	$10	☐ Family	$15
☐ Life	$100	☐ Organization	$25
☐ Small business	$50	☐ Municipality	$100
☐ Corporate	$150	☐ Other	$_____.

Please make checks payable to:

Turtle Creek Watershed Association

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325 Commerce Street, Suite 204
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Thank you very much!

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