

THE CATALYST

SLIPPERY ROCK WATERSHED COALITION MONTHLY ACTIVITIES UPDATE

THIS MONTH'S MEETING: Thursday /10/07 at 7 pm at Jennings Environmental Education Center, pizza and pop provided. 4/12/07 Meeting Attendance: C. Cooper, C. Denholm, K. Durrett, D. Johnson, V. Kefeli, W. Taylor, S. VanderWal

"Five Years and Counting!" SRWC DeSale Phase III



Kyle Durrett clears debris from a spillway (Left) and Tom Grote samples the final effluent (Right).



(Seaton Creek, Slippery Rock Creek Watershed, Venango Twp., Butler County, Pennsylvania)

On January 17, 2007, **Slippery Rock Watershed Coalition** participants performed maintenance and monitoring activities on one of the 18 passive AMD treatment systems in the watershed. On that day, **Tom Grote** measured flow rates and conducted field water quality testing while **Kyle Durrett** removed vegetation and iron solids partially clogging a spillway from a Vertical Flow Pond. The De Sale Phase III passive treatment system was installed in 2002 with funding from the **PA DEP Growing Greener Program, Butler County Commissioners, and the Western PA Watershed Program** and to date has required only minor maintenance, such as that pictured to the right.

Even though the flows are low, the quality of the raw discharge is very poor, as depicted in the following table.

Typical Discharge Characteristics

Point	Flow (gpm)	pH	Alkalinity (mg/l)	Total Fe (mg/l)	Total Mn (mg/l)	Total Al (mg/l)
raw	—	3	0	70-130	60-140	10-40
treated	10-60	6-7	40-90	<1	20-80	<1

The generous support of landowners and efforts like those of Tom and Kyle are needed to help sustain the function of passive treatment systems and the resulting improvements in stream water quality and aquatic habitat.

Save the Dates!!!

Harrisville Community Days will be celebrated **July 4th** in Harrisville Community Park, Rt. 8. Harrisville Community Days starts at 2PM with special programs, food, activities, vendors, fireworks, and much more! There's something fun for everyone! For information call 724-735-2191.

The **2007 AMD Conference** is scheduled for **July 20-21** at the Ramada Inn and Conference Center in State College, PA. The 2006 Pennsylvania Statewide Conference on Abandoned Mine Reclamation brought together 200 people from seven states to provide workshops related to outreach, policy, science, and watershed planning. For information on registration for this year's conference, check out www.TreatMinewater.com

The **6th Annual Ohio River Watershed Celebration** is set for **Thursday, September 20!** Enjoy interesting speakers, informative displays, hands-on tables with activities such as fish printing, educational games, opportunities to network, and much more! A variety of folks will be participating in the celebration of the Ohio River Watershed and sharing ideas on local watershed protection. Hundreds of individuals from watershed groups, state and local government agencies, teachers, environmental professionals, local business and industry, students, interested citizens, and others will be on-hand to discuss issues critical to our watersheds. Come have fun as we sail the Three Rivers on-board the *Majestic*, with a 3-hour guided cruise featuring narration of the sites/landmarks of interest, beautiful scenery, informative displays and posters, educational presentations, and valuable door prizes! Registration information will soon be available at www.streamrestorationinc.org/rsvp.



A High Flow Time of Year: Effluent of the largest anoxic limestone drain (ALD) at the Erico Bridge Restoration Area.

Design Flow: Avg. 300 gpm and maximum 700 gpm

Visual Estimated Flow on 3/28/07: ~1,200 gpm ("giantormous")

Final Effluent on 3/28/07: 7 pH, 94 mg/L alk, 3 mg/L Fe

SRU Student Recognized for Outstanding Research

Tiffany Czapski, a Biology major at **Slippery Rock University** from Butler, PA, completed a publication-quality Honors research project with **Dr. Dean DeNicola** examining primary productivity and respiration of benthic algal communities in streams affected by acid mine drainage. She measured oxygen changes and chlorophyll concentrations in algal communities on rocks at 3 sites in the Slippery Rock Creek Watershed: an AMD impacted site without treatment, a site below a passive treatment system, and a non-impacted reference site. She presented her research at the **National Collegiate Honors Council's** annual conference in Philadelphia and at the SRU Research Symposium. Her conclusions were:

- Productivity, respiration and biomass of benthic algal communities were greatly reduced at acid mine drainage (AMD) impacted sites compared to the reference site.
- Significantly lower gross primary productivity at the AMD impacted sites indicated that factors such as metal concentration, pH and species composition may play a role in reducing productivity.
- Significantly lower chlorophyll *a*/phaeophytin and gross primary productivity/community respiration ratios at AMD impacted sites indicate these communities were more physiologically stressed than at the reference site.
- Gross primary productivity, net primary productivity, community respiration and biomass-specific gross primary productivity were all higher at the AMD impacted site downstream of passive treatment systems (67) than at the site upstream of treatment (44), which suggests that passive treatment systems have the potential to reduce AMD impacts and benefit higher levels of the food web.

A Mining "Did You Know"?

This month's *Kid's Catalyst* (see opposite page) highlights some commonly mined minerals and their uses in many products we utilize in our day-to-day lives. Mining is not often thought about by the typical American, though we all certainly benefit and depend on this valuable process for many things. In a study by the Mining Association of British Columbia, "Mining represents the highest value use to which a hectare of land can be utilized." Mining is full of interesting "Did You Know" facts, including:

- Every American uses over 46,000 pounds of mined products each year.
- The USA is the 3d largest producer of gold, and second largest producer of copper in the world.
- Minerals and materials processed from minerals account for exports worth as much as \$33 billion per year.
- A television requires 35 different minerals, a telephone 42, and more than 30 minerals are needed to make a computer.

Facts come from The National Mining Association



The KIDS Catalyst

SLIPPERY ROCK WATERSHED COALITION FUN ACTIVITY



Minerals' Products Pathways

We don't often think about all of the different minerals that make up so many products we use and enjoy in our daily lives. Mining is an important process in carefully removing these useful materials from the earth. It is the only source for the minerals and metals that are required to maintain the high quality of life we enjoy in our society. Below are the names of 8 common minerals mined today which are used in many products you will recognize. Trace the path connecting each mineral to examples of what it is used in, then write the mineral's name on the line in each box. If you send us your completed paper, we will mail you a free gift certificate!

Name _____
 Age _____
 Address _____

Food seasoning,
 fire extinguish-
 ing, mouthwash

Batteries, mir-
 rors, jewelry

Statues, animal
 feed, glass, pa-
 per

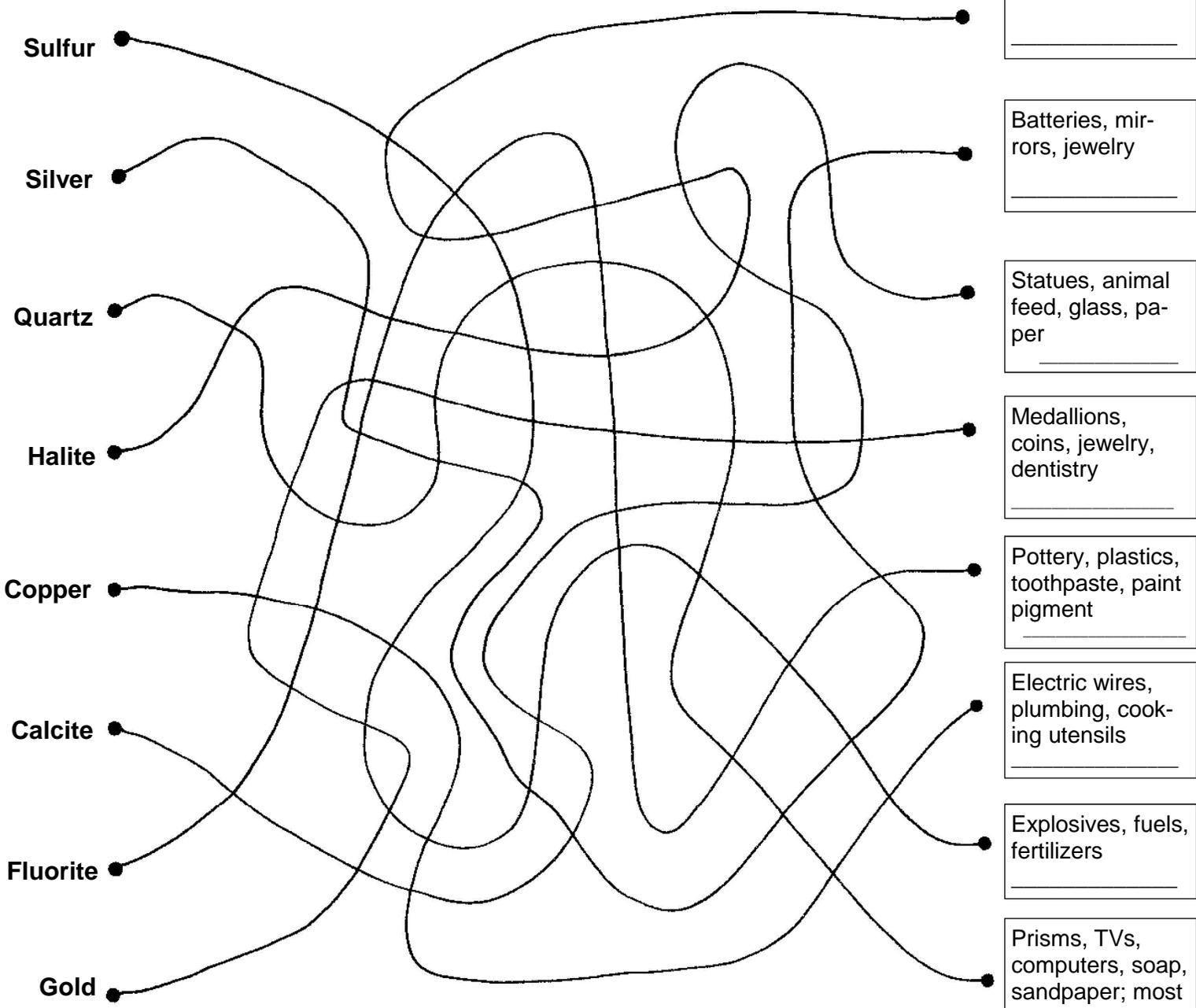
Medallions,
 coins, jewelry,
 dentistry

Pottery, plastics,
 toothpaste, paint
 pigment

Electric wires,
 plumbing, cook-
 ing utensils

Explosives, fuels,
 fertilizers

Prisms, TVs,
 computers, soap,
 sandpaper; most
 common mineral
 in earth's crust!!



Gold

Fluorite

Calcite

Copper

Halite

Quartz

Silver

Sulfur



Slippery Rock Watershed Coalition c/o Stream Restoration Incorporated
A PA Non-Profit Organization
3016 Unionville Road
Cranberry Twp., PA 16066

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From Jennings to Australia

She used to work at **Jennings Environmental Education Center (JEEC)** in Butler County, Pennsylvania. Now she works in Lyneham, a suburb of Canberra, in the Australian Capital Territory (ACT)!!! **Tanya Noakes** is the new **Southern ACT Waterwatch** Facilitator in Lyneham! Prior to her new appointment, Tanya was the Waterwatch Coordinator for the last two years. Previously she worked for AusAid in Thailand, and was an Environmental Education specialist at **JEEC** before that. Waterwatch is a national community water quality monitoring and education network that encourages all Australians to become involved and active in the protection and management of their waterways and catchments. The Waterwatch network is made up of individuals, community groups and school groups who undertake a variety of biological and habitat assessments, including physical and chemical tests to build up a picture of the health of their waterways and catchments. Tanya listed drought, community apathy, and intermittent funding as the problems her Canberra region is struggling with, in a recent Waterwatch newsletter. Her goals include improved data confidence, strengthened community relations, and an improved sense of cooperation and friendship between all of the community-based environmental organizations in the region.

By monitoring their local waterways over time community members can determine if the health of their waterways and surrounding lands are improving, declining, or being maintained, and take action accordingly. Forty plus volunteers scour the countryside and assess the quality of the surface water at over thirty sites. They look for elevated nutrient levels, (indications of fertilizer misuse or improper stock access), high turbidity (indicating soil erosion and stream bed disturbance), and changes in pH, salinity, temperature and levels of dissolved oxygen (essential for fish)... sounds pretty familiar to the work of watershed volunteers back over here in the United States, doesn't it?! No doubt Tanya's experiences teaching at Jennings come in handy with Waterwatch's focus on providing free educational programs designed to lead students from awareness to action in their care for and commitment to the local environment in Australia! As a long term project, the Waterwatch volunteers have also been monitoring the affects of the 2003 bushfires. To learn more about their interesting results, visit <http://www.sactcg.org/waterwatch.html>