



## Eastern PA Coalition for Abandoned Mine Reclamation

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### December 2017 Progress Report

#### Highlights:

- Managed EPCAMR staff as they scanned 131 mine maps into TIFF images, georeferenced 74 & digitized mosaic maps for the MSI Mine Mapping Grant. QA/QC checked work.
- EPCAMR staff participated in 3 AMR Campaign calls & researched grant opportunities with the **Rockefeller Fdn's Just Transition Fund**; Visited refurbished AMD treatment system in **Sullivan County**; Raised brook trout in TIC tank and participated forum in the name of EE.
- Sampled Plainsville Borehole discharge to the **Susquehanna River** in **Luzerne County**; Finished up mine pool mapping work for the **SCRA** and **Northumberland County**
- Updated [www.epcamr.org](http://www.epcamr.org). Administered the EPCAMR Facebook and G Suite for Nonprofit accounts. Maintained GobbaDaPile in-house domain server and workstations.

#### Education, Outreach and Admin.:

- Started a Pennsylvania Abandoned Mine Reclamation (AMR) Conference website for 2018. The URL is <http://2018.treatminewater.com>.
- Forwarded information from news on the web having to do with AML Reclamation to EPCAMR AmeriCorps member, Abbie Keefe, to post to our social media accounts.
- EPCAMR staff participated in 3 AML Campaign calls. Followed up to provide local articles to the group and through our social media outlets.
- Filled an Iron Oxide order from the EPCAMR online store.
- Traded office with EPCAMR outreach staff. The move was strategic in that it was an attempt to keep the GobbaDaPile server cooler, since the 3<sup>rd</sup> office is always cooler year round. I also do not mind a cooler room. The office is more private in that all the glass above the doorway is intact and would serve as a place for management staff to participate on conference calls without disturbing other staff.
- Discovered that OfficeMax would accept spent ink and toner cartridges at their store for recycling and would give back \$2 in rewards for each, up to 10 per month with a purchase of \$10. This is much better than the former program that we were using from Quill.com. Since Quill was purchase by Staples, they migrated their ink recycling policy to match Staples which is a horrible incentive scheme. So far we have generated \$40 in rewards. As an environmental non-profit organization, we should support companies that encourage recycling and other environmental policies.
- Contacted Heidi Binko, Just Transition Fund and Rockefeller Foundation representative, to request some time to strategize environmental justice projects for the Anthracite Region.
- Continued to battle high nitrate levels which may have lead to a white fungus outbreak in the Trout in the Classroom (TIC) tank. The issue was definitely overcrowding. If you go by the old tropical tank axiom of 1 inch of fish per gallon, the 45-gallon tank should support 90 fry being that the fry are about ½ inch in length. Conducted 40-50% water changes 2x a week until the levels were below 80ppm. Added house plants to the tank which could be grown hydroponically after

researching what types were safe. Also found a live lettuce ball in the supermarket, however this plant did not survive for very long in the low light environment.

- EPCAMR staff participated in the PA TIC Facebook Forum where almost 100 teachers from Pennsylvania talk about their experiences in raising brook trout in the classroom. Provided some knowledge of chemistry, tips for taking care of tanks (which I have personally done since a teen) and learned from teachers that have been participating in the program for several years.
- Found a school that also was live streaming their trout tank on YouTube. We, on the other hand, had not heard anything from YouTube about our appeal to their decision to terminate our account. Tweeted at YouTube to see if that would get a response, but unfortunately it did not.
- Planted some herbs in a windowsill planter in preparation for growing hydroponically in the TIC tank in the near future.
- Fixed holes in the ceiling that was allowing cold air and an occasional bat to fly into the office. Custom fit a plastic overhead light hole cover around a roof drainage pipe and replaced a ceiling tile to seal up the holes.
- Tackled a mystery white fungus that began to grow in the TIC tank with a 0.5% solution salt bath. The salt solution, in theory, should kill off the fungus but leave the trout unharmed. Aquarium salt is often used to treat a range of fish diseases. The treatment seemed to do the trick and following water changes diluted the salt solution slowly over time.
- Updated printing costs for EPCAMR members and non-members as ink prices have risen since the cost were initially calculate. Luckily, paper prices have remained the same so the increase were minimal. Members have been charged only enough to cover costs, non-members have been charged slightly higher price to help cover incidentals.
- Researched denitrifying bacteria and found that they actually need an anoxic environment to survive. Found a filter media that had a solid core, but was still porous and would support an anoxic environment better than the media that came with the filter. The original media was a hexagonally shaped ceramic media with a hole in the middle. Despite getting nitrate levels under control by the middle of the month, 300+ fry fell to the bottom of the tank with signs of nitrate poisoning and eventually died. We counted ~80-90 still alive by the end of the month.
- Sent Upper Lackawanna Scarlift to WPCAMR staff to add to their AMR Clearinghouse website.
- EPCAMR staff traveled to Sullivan County to see the refurbished "Mine Acid A" limestone drain treatment system by Hedin Environmental and funded by Southwest Energy. The 3 cells were uncovered, limestone was washed to remove built up sediment and covered again. The system intake was buried to promote an anoxic environment and both the intake and outflow structures are now controlled by AgriDrain structures. The resulting flow thru was improved and the system is effectively treating several hundred gallons per minute in each cell. Expansion piping was installed in the event that the Loyalsock Creek Watershed Association (LCWA) wanted to expand treatment since the average flow is still not being completely treated.
- Submitted reimbursement paperwork for months of July to October to the PA DEP 319 program.

### **Technical Assistance:**

- Georeferenced several difficult maps for the Mine Mapping Grant (MMG) [MSI].
- With a little down time, I was able to test out an opportunity to open earthVision generated 3D mine pool models in ArcGIS. Office of Surface Mining Reclamation and Enforcement (OSMRE) staff worked with Dynamic Graphics, Inc. (DGI), the makers of earthVision, to allow conversion of the 3D models into standard tessellation language (STL) which is a common format for 3D printers. Upon research, I found that the STL model could be opened in GlobalMapper, 3D builder (built in app from Windows 10) and MeshLab. Stumbled upon the fact this is a format that can be opened in ArcScene as well, however, it does not pass along real world coordinates. Spoke with OSMRE staff about other formats that could be promoted like Sketchup (SKP), which is a 3D format that passes along real world coordinates. Sent these files to Pierre McCoy, Susquehanna River Basin Commission (SRBC) hydrogeologist and teachers at Wyoming Seminary to print on their 3D printer [SRBC].
- After being consistently criticized for using our anthracite grid layer to line up underground mine maps in the MMG, I spoke with Rick Ruggerio who has worked at Earth Conservancy (and Blue

Coal Corporation before that) reading maps for decades. He backed up a fact we learned from Roger Hornberger, formerly of the PA DEP Pottsville District Mining Office (DMO), while completing a mine pool study of the Western Middle and Southern Anthracite Fields. He emphasized that the only maps that could be correctly georeferenced to aerial photos would be surface maps. If and when surface features such as houses and roads are drawn on underground mine maps, their location was calculated using a grid created by the mine company. Therefore, it would be more exact to line up underground mine maps to their corresponding surface maps instead of aerial photos. Forwarded this rather lengthy explanation to Patrick Jacquay, PA DEP California DMO, our MMG project lead. To be fair, he was also under the assumption that we were using the digitized anthracite grid layer which could be off from east to west by a certain fraction related to magnetic north. Instead we agreed to only use the grid when we had a surface map for that same colliery as opposed to a neighboring colliery. He agreed to re-evaluate their process of quality control on georeferenced work we send. We hope the result will be a better set of georeferenced maps [MSI].

- Sampled the Plainsville Borehole for the last time under the grant from the Foundation for PA Watersheds (FPW). We will submit a final report shortly showing an analysis of monthly readings over a year span [FPW].
- Needed to send a fax which is still available through our HelloFax google app. We are able to send up to 5 faxes per month. We used to pay for the ability to receive faxes, but being that it was a rare occasion, we could not justify the ~\$100 annual fee.
- Downloaded flows from the Swoffer flow meter in case we needed to clear the machine as we were approaching the maximum of 99 sites.
- Answered questions about the Audenreid Treatment System from a local coal company.
- GobbaDaPile domain server began acting up and losing connection to shared drives. Gave it a break for a few days and pulled the drives offline as staff were not using the drives much this month. Ran a manual backup of the drives and windows updates in an attempt to stabilize things. Also switched drives in the RAID towers in an attempt to give the heavily-used X drive tower a rest and begin using the less-used Y drive tower daily.
- Purchased CAT5e network cables and replaced the lower grade network cables that lead to the server in an inexpensive follow up attempt to maximize transfer speeds between the server and workstation computers.
- Performed quality assurance and quality control (QA/QC) duties on scanned and georeferenced maps for the month [MSI].
- Aided MMG staff as they continued to create mosaicked mine maps of the Wilkes-Barre East quadrangle. Troubleshoot issues with white areas showing up on maps which ended up being tied to editing of footprints of each map. There is a very specific process to select only the footprint layer or the boundary layer would also be edited simultaneously. Creating mosaics in ArcMap is a very “glitchy” process but this can be controlled by following certain protocol [MSI].
- Finished up years of unfunded work since the close out of the Western Middle and Southern Anthracite Coal Field Mine Pool Mapping Report grant to hopefully support development within the Sedco Industrial Park, a former AML site. Edited mine pool and geobasin boundaries. Digitized 16 surface water to mine pool infiltration points in the Mahanoy Creek Watershed from a surface mine map to Our EPCMAR infiltration point shapefile. Created a “Figure IV” for the report which showed mine pool information for the western portion of the Western Middle Coal field. Contacted the Shamokin Creek Restoration Alliance (SCRA) and Northumberland County Planning Commission to provide them the maps and schedule a meeting to discuss future opportunities. Printed 5 copies of the map and sent them to SCRA.
- Troubleshoot an issue with black lines showing up on prints from the Cannon Printer. Worked with the toner supplier to replace the defective toner cartridge and purchase 2 more that were replaced from backup stock.
- Completed a comparison of files on the X Drive and recorded in the PA Historic Underground Mine Map Inventory System (PHUMMIS) for the MMG program in preparation for reimbursing October and November work. Found several mistakes that needed to be fixed [MSI].

[ ] - Denotes funding source where applicable.