



## Eastern PA Coalition for Abandoned Mine Reclamation

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### January 2019 Progress Report

#### Highlights:

- Managed EPCAMR staff as they scanned 144 mine maps into TIFF images, georeferenced 67 & digitized mosaic maps for the **PA DEP MSI MMG** program. QA/QC checked work.
- Worked on building vein nomenclature lists with EPCAMR volunteer for MSI program.
- Started creating a 3D model in ArcGIS format for mine pools near **Mocanaqua** for **SRBC**
- Continued scanning, georeferencing and began digitizing maps for the **Luzerne Co. Rail Corp.**
- EPCAMR staff participated in an AML call, attended a Knox Mine Disaster documentary premiere and prepared for the Environmental Workforce Training with **Earth Conservancy**.
- Raised **TIC** trout and aided in forum for **PA FB&C**; livestreamed tank at [www.dailymotion.com](http://www.dailymotion.com)
- EPCAMR staff sampled minepool monitoring stations near **Mocanaqua** for the **SRBC** and 2 AMD treatment systems along the **Loyalsock Creek** for the **Sullivan Conservation District**.
- Updated [www.epcamr.org](http://www.epcamr.org); updated items on the EPCAMR online store; administered the EPCAMR Facebook and G Suite for Nonprofit accounts (for NAAMLPA as well); maintained GobbaDaPile in-house domain server and workstation

#### Education, Outreach and Admin.:

- Contacted by a first time Trout in the Classroom (TIC) program teacher in the Schuylkill Haven School District upon recommendation of the Schuylkill Headwaters Association. The teacher was worried about the health of her tank. I was able to help her know when to take action based on chemistry and observation of the fish.
- Released trout alevin from their floating redds into the TIC tank. They had become pretty healthy little swimmers and eating well. Placed the web cam in the side of the tank and live streamed on [www.dailymotion.com/epcamr](http://www.dailymotion.com/epcamr).
- Calculated raises for staff and passed the information on to the personnel committee.
- Created a sales order and the first invoice for the Harry E. Culm Pile Removal Project in Swoyersville with QuickBooks. Invoiced the PA DEP 319 program for work completed in October and November. Invoiced the Luzerne County Rail Corporation (LCRC) for work completed in November and December.
- Created an Orange Water Network group on Facebook. A group to talk about issues and solutions surrounding mine drainage pollution treatment.
- Updated the 2019 EPCAMR Membership Application and uploaded it to [www.epcamr.org](http://www.epcamr.org).
- Completed the EPCAMR Program Manager reports for November and December.
- As per recommendation from the TIC Facebook group, ordered watercress seeds to help control nitrate levels in the TIC tank. Sprouted the seeds in a dish of tank water then added them to the floating redd baskets at the top of the tank. Changed 40% of the water in the tank to reduce the nitrate levels in the meantime.
- Met with Elizabeth Hughes, Earth Conservancy, to coordinate the Environmental Workforce Training next month. EPCAMR will lead a tour of AML sites and teach an exercise in the

practical use of GIS related to the redevelopment of AML. Developed and printed maps for the course including a DIY GIS map with mylar and markers. Created an answer key.

- Rearranged EPCAMR Executive Director's office in an attempt to make his desk more accessible regarding his back pain. The desk has a pull out drawer for a keyboard and mouse in a more ergonomic position, but in it's current configuration he would be facing the windows instead of the door. Rotated the desk and moved it to the other side of the room which forced us to move the kitchenette closer to the door. The result is a more functional room for all staff.
- Attended a Knox Mine Disaster Documentary at Wyoming Seminary. Trailer can be seen at [www.knoxminedisaster.com](http://www.knoxminedisaster.com).
- Tested TIC Tank to find that the watercress seemed to be doing it's job of sucking up nitrates and stabilizing levels below 100ppm.
- Updated the board meeting page on [www.epcamr.org](http://www.epcamr.org).
- Continued to monitor chemistry in the TIC tank a few times a week and doing water changes with water from a local artesian monthly.
- EPCAMR management staff participated in an AMR Conference Call to discuss scholarship awards to the NAAMLPLP conference and continued fundraising attempts. At this point we were only \$7.5K away from the \$30K fundraising goal.

### **Technical Assistance:**

- Helped scan maps and found a misnamed map. Problem caused by working ahead on scanning. Information was gathered on several maps for cataloging purposed before they were scanned. Reiterated to staff scanning maps that one map should be processed at a time. [MSI]
- Found some maps which helped correlate vein nomenclature in the Western Middle Anthracite Coal field. Organized these and some other correlation maps into a folder for quick reference. [MSI]
- Designed and printed new maps for the wall featuring coal collieries, quadrangle, county and municipal boundaries to aide in cataloging maps. [MSI]
- Spoke with Mike Dunn, Office of Surface Mining Reclamation and Enforcement (OSMRE) Appalachian Field Office, about the potential for 3D modeling mines in ArcGIS. He explained it is possible, but a cumbersome 5+ step process. The technology for creating multipatch shapefiles has not changed since the late 1990s. It still involves creating Triangulated Irregular Network (TIN) grids which adds error if the cloud point data is not preprocessed with an interpolation grid and as I learned can create errant "open" objects. It is very difficult to "close" them to allow for volume calculations. Not many people use the technology and therefore if you run into problems virtually no one knows how to help you. [MOC]
- Continued to aide Conal Herron, EPCAMR Volunteer, as he reviewed OSM Folios and created vein nomenclature tables in the Pittston, Scranton and Olyphant area quadrangles.
- Georeferenced difficult rail road maps and organized already georeferenced maps in a GIS map document for the Luzerne County Rail Corporation (LCRC).
- As the federal government was shutdown, several services began to be impacted including our access to ArcGIS through the OSMRE. Updated ArcGIS Pro on all computers as it was letting us know we only had 4 days left till to use the service.
- Created a 3D multipatch shapefile of the Bottom Red Ash vein in the West End Colliery in ArcGIS Pro upon recommended instructions from Mike Dunn at OSMRE. The file was "closed" but incorrectly modeled in the highly faulted Hawk Basin. The coal vein in this area is known as the Hickory Vein. Clipped these points out and created 2 separate 3D multipatch files which allowed the vein to be modeled better. [MOC]
- We lost access to ArcGIS as the federal government shutdown was in full swing with no prospect of an agreement to end it in the near future. EPCAMR was forced to purchase our own licenses of ArcGIS to keep staff working. Luckily we had to researched purchasing licenses for another organization and applied for the ESRI Non-Profit Program. Purchased 4 licenses from ESRI for \$100 each which included ArcGIS Pro 2.x, Desktop 10.6.x and Online access. Learned the overly complicated new license structure with help from ESRI customer

care. Setup staff accounts to use ArcGIS Pro and several extensions. The desktop concurrent licenses had to be removed and individual programs installed on each staff computer.

- Attempted to find the best maps of individual veins in the West End Colliery and trace boundaries, background work that will lead to the development of more 3D multipatch shapefiles. [MOC]
- As the Earth Conservancy began spring cleaning early, several maps were thrown out which concerned us as we were searching for maps in the South Wilkes-Barre area. Rescued several maps, added them to our own collection and scanned for the MSI program. [MSI]
- Lost connection to the X Drive and feared the worst as with previous setups. Updated firmware on the X and M drives and we were back in business with no data loss (\*knock on wood\*). The NAS drives turned out to be a good upgrade.
- Picked up maps and books from the Luzerne County Rail Corporation. EPCAMR intern, Jessica Britten, scanned books into PDF format, enabling staff to extract railroad crossing location tables for use in ArcGIS database. Converted the PDF pages into excel which was far from perfect, but saved us from having to re-type most of the information. Converted the degrees, minutes and seconds latitude/longitude coordinates into decimal degrees with an online converter from [www.latlong.net](http://www.latlong.net). Converted the tables into a point shapefile in ArcGIS. Attempted to place points that were incorrectly located and ones that had no location. Created a set of instructions for other staff to digitize the other 10 books. [LCRC]
- Converted data from the transducers in the Black Creek Watershed near Mocanaqua and delivered the data to the Susquehanna River Basin Commission (SRBC). [MOC]
- Continued to aide Conal Herron, EPCAMR Volunteer, as he reviewed OSM Folios and created vein nomenclature tables. He finished up the Northern Anthracite Coal Field and moved on to the Western Middle Anthracite Coal Field.
- Began to digitize property boundaries from the railroad maps and created an attribute table to record railroad operator, property owner, and other pertinent pieces of information. [LCRC]
- Field sampled flow and chemistry at 2 sites along the Black Creek for the Mocanaqua Mine Pool Project. Collected water samples at the tunnel discharge and sent them to Hawk Mountain Labs for analysis. Took water levels and transducer readings at 3 strip pits, and 4 boreholes and 3 water quality monitoring sites. Recorded results in a google spreadsheet shared with the Susquehanna River Basin Commission. [SRBC]
- Sent Total Organic Carbon (TOC) and Ferrous Iron samples to Mahffey labs in Curwensville to sample these parameters in hopes that most of the acidity can be driven off in gaseous form vs. alkaline addition. Regardless, the results will aide in eventual treatment of the discharge.
- Sampled flow and chemistry on 2 treatment systems (WALA Connel B and C Tunnel AMD treatment systems), upstream and downstream on the Loyalsock Creek to judge the effectiveness of the upgrades to the Connel B Tunnel AMD treatment system. [LCWA]
- Copied features from the MSI Underground Mine Areas (UMA) into the UMA for the Mocanaqua Mine Pools. This area in particular is hard to georeference maps to with the lack of existing surface features and incorrectly drawn property boundaries which resulted in many of the digitized areas to be off. As explained by a former Blue Coal Corporation employee, "The West End and Stackhouse mines were not extensively underground mined once Glen Alden took them over because they could not get good control of them. It was too heavily faulted and the records from the previous coal company were not good." Adjusted the UMA shapes for the Mocanaqua Mine Pools to match the former location of surface features as indicated on period surface maps. Also georeferenced and digitized some adjacent Glen Lyon maps to help shape mines in the heavily faulted West End colliery. [MOC]
- Met with Bernie McGurl to hand over a set of keys to access the plate over the Old Forge Borehole transducer. Being intermittently covered with river water, the locks were froze up and probably just need to be cut off and replaced with waterproof locks.

[ ] - Denotes funding source where applicable.