

**West Virginia Watershed Assessment Pilot Project
Tug Fork and Tygart Valley Watersheds
Stakeholder Workshop Summary
November 13, 2013
Flatwoods, West Virginia**

Workshop Objectives

The goals of this workshop were to:

- 1) present the current condition and consolidated analysis results for the final two watersheds and obtain stakeholder feedback; and
- 2) demonstrate a preliminary version of the interactive web tool and present potential use scenarios. Get stakeholder input on desired web tool design, functionality, and possible uses/workflows.

Presentation Summary

The workshop began with a review of the project background, including project goals and timeline, and a brief review of the watershed assessment methodology: landscapes, indices, metrics, and objective thresholds and categorizations. This was followed by a presentation of the latest version of the current condition and consolidated analysis results for the Tug Fork and Tygart Valley watersheds. An open discussion followed each presentation, during which experts who had not attended previous workshops requested further information, and experts familiar with the project offered suggestions and additional questions. Overview and results maps for the two watersheds were displayed for reference. After the watershed presentations, the demo version of the web map tool was presented, and potential workflows for use of the tool were discussed. The Team reviewed trends emerging from the analysis results with stakeholders, and solicited feedback on desired functionality and possible user workflows for the interactive web tool.

Review of Project Background

Ruth Thornton, TNC

Ruth presented the project background and a review of the methodology, including a detailed review of analysis indices and metrics, and how the thresholds used for the analysis were determined from reference and stressed catchments. She also presented the concept of “critical” metrics, those metrics significant enough to cap their corresponding index score, regardless of other metrics within that index.

Following the review of the project, stakeholders were given the opportunity to ask questions about the assessment methodology and results. An initial question dealt with whether or not there would be a way for individuals to get ground-truthed data into the system to update the analysis results. The response from the project team was that this process would likely be too complex to incorporate into the web tool automatically, but that the project does plan to provide a list of data providers and links to relevant contacts so that users can get in touch with the right people to help update the data. Another question was whether there was a consideration of land costs in the final results and/or web tool. The

project team acknowledged that this was valuable information, but that there are many technical and proprietary issues around providing those data publicly and keeping them current, and suggested that users compare the watershed assessment results and data with tax map parcels to determine ownership and appraisal values.

Overview of Tug Fork Watershed Results

Misty Downing, TNC

A large amount of resource extraction activity occurs in this watershed, particularly surface and underground mining and oil and gas well development. There is very little urban development, but significant amount of roads and railroads. There are a few areas of protected lands, including several wildlife management areas and one state forest. Overall, streams suffered from a variety of mining-related water quality impairments in certain areas, and there are areas of degraded riparian habitat and fragmented hydrological features. The watershed has few wetlands, and most of the existing mapped wetlands were in decent condition, with generally minimal habitat fragmentation in the wetland buffer or anthropogenic land use in the wetland catchments. The watershed has a significant amount of fragmenting features and recorded invasive species (which are likely roadside based surveys, based on the spatial distribution of the data).

Comments: It was noted that water from underground mining pools in McDowell County is used as a public water supply and is generally very high quality water. Thus, underground mining should not be considered an impairment of water quality in that area. Underground mining water regulation has also reduced flashiness in streams. The project team acknowledged this reality, which has been discussed multiple times in various expert and stakeholder workshops; however, due to the fact that the assessment methodology is designed to be applicable across the state and in various geographies, it is difficult to modify results based on just one county or several HUC12s. Additionally, underground mining is a polygon dataset, and does not include point features where mining pool discharges exist. Therefore, the contribution of high quality underground mining water cannot be spatially identified; also, this water is stored in aquifers/subsurface waters, and groundwater is not a consideration in this analysis, also due to data limitations. WVDEP stakeholders shared that more information about underground mining water may be available in mining permit data or well sampling data, but this will only cover newer permits, and wouldn't apply to older mines (the mines discussed in the Tug Fork are older mines with existing permits). Stakeholders also noted that there is a water quality assessment report for the Pigeon Creek HUC12, conducted by the Natural Resource Conservation Service (NRCS).

Overview of Tygart Valley Watershed Results

Misty Downing, TNC

The Tygart Valley River watershed has distinct land use/land cover trends, and results for all models and indices tend to reflect these patterns, with higher quality areas in the south and east along headwater mountain ridges, and lower quality areas in the northwest and around developed areas of the watershed. There are significant amounts of oil and gas wells and some surface and underground mining in the western parts of the watershed. There are several large towns in the watershed, and this land use and associated fragmenting features are concentrated in these areas. The Tygart has some significant

wetlands complexes, particularly in the southeastern river valley; these areas also have higher concentrations of agriculture and grazing pasture land uses. Several protected lands occur in the watershed, particularly in the south and east, with Kumbrabow State Forest and a portion of the Monongahela National Forest in these areas of the watershed.

Comments: It was noted that within this watershed development of Marcellus shale in the eastern mountainous regions would be limited regardless of shale thickness values, due to tectonic shifting in this area which releases gas and makes drilling geologically and economically infeasible.

Interactive Web Mapping Tool

Ruth Thornton, TNC

The stakeholder group was presented with the demonstration/draft version of the future web mapping tool currently under development by Casey Schneebeck and Paul Angelino of TNC's Colorado office. Currently, the demonstration version is a basic map with data layers that can be turned off and on in a table of contents, with a prototype of the attribute table design. Current layers include hydrology and mining, various land use and land cover layers, and the assessment analysis results. To provide a clearer example of how the final web tool would function and what potential work flows would be, a potential use scenario was presented for each watershed and landscape. These scenarios were based on many of the project team's assumptions about how users would mainly use the web tool, for example that Very Good areas would be considered priorities primarily for protection and Fair areas mainly for restoration. Stakeholders were encouraged to provide their own examples of how they anticipated using the tool, their possible workflow(s), and what data and attribute information may be most useful in project planning.

Desired functionality/features of the web tool suggested by participants:

- Make a YouTube video as a how-to manual to guide users in using the web tool
- Link to other economic/social websites to get further data or information/contacts
- Be able to export data as a .kmz (Google Earth) file
- Search function, and identify function, print function, export as Excel function
- Label or the ability to identify USGS stream names
- Provide a link to WVDEP alerts
- Ability to bookmark certain areas or by a list of catchments
- Ability to download data from a user-specified AOI (area of interest) into GIS – primarily results from the analysis, since other datasets are already publicly available from various sources
- May be useful to open multiple attribute tables to compare different results between planning units (for example, if you were determining where best to work on water quality issues for the drainage area of a lake, you may want to be able to compare several of the contributing catchments to see where your work may be most effective)
- Find water quality sampling stations by latitude/longitude and/or stream name

The project team will work with the developers of the web tool to incorporate as many of these suggestions as is practically feasible within the project scope.

Meeting Attendees

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