Deckers Creek

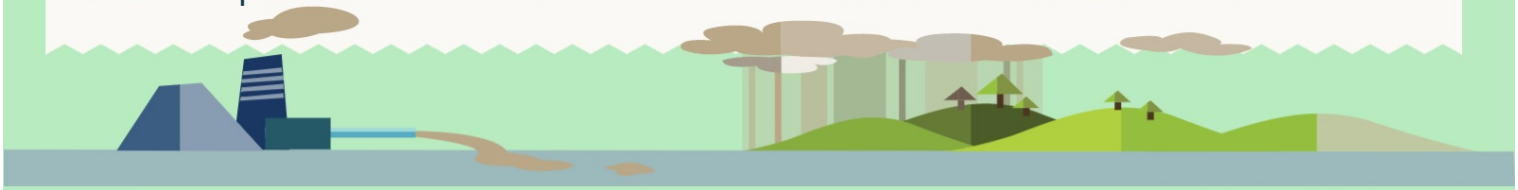
State of the Creek

2010-2013

Executive Summary

The State of the Creek report is created by Friends of Deckers Creek through the implementation of its Clean Creek Program (CCP). Since Friends of Deckers Creek formed in 1995, water quality in the Deckers Creek watershed has improved. The treatment of acid mine drainage (AMD) is making a difference in the Deckers Creek watershed.

Unfortunately, Deckers Creek through Morgantown remains an eyesore, barely able to support aquatic life due to AMD from the Richard Mine. CCP data shows improvement in the main stem of Deckers Creek; however, sites below the Richard Mine and in several major tributaries show impaired communities of fish and stream invertebrates.



The Deckers Creek Watershed

64

The Deckers Creek watershed spans 64 square miles in Monongalia and Preston Counties and includes Deckers Creek and all of its tributaries.

8

The watershed includes 8 notable communities. In Preston County, Deckers Creek runs through Arthurdale, Reedsville, and Masontown. In Monongalia County, the watershed lies within the areas of Brookhaven, Dellslow, Richard, Sabraton, and Morgantown.

4

There are 4 types of coal found in the watershed. The Upper and Lower Freeport Coal are found throughout the watershed.The Bakerstown Coal seam was mined in the upper watershed. The Pittsburgh Coal occurs only near Morgantown.

Acid Mine Drainage (AMD)

Coal and pyrite,a mineral associated with coal, are responsible for the most devastating pollution in Deckers Creek: acid mine drainage (AMD)

Mining coal exposes pyrite (iron and sulfur) to oxygen and water. Oxygen reacts with sulfur to form sulfuric acid which brings dissolved iron and aluminum into the water. AMD is detrimental to aquatic life because of both its acidity and high levels of metals.

Water

We sample for pH, temperature, conductivity, flow, and dissolved oxygen

4

Sample four times annually

Samples go to the WVU National Research Center for Coal and Energy

Samples are analyzed for metals and acidity

Fish

We sample for fish each fall

A backpack electrofisher is used to stun and collect the fish

Fish are identified by species, weighed, measured, and returned near their point of capture

The WVU Wildlife and Fisheries Department helps us with the sampling

Stream Macros

We use kick nets to capture the macros. They are then sorted, identified to the family level, and counted

Benthic Macroinvertebrates (macros) are sampled in the spring

Data is used to calculate West Virginia Stream Condition index scores for each site

Sampling Methods

The Clean Creek Program

Founded in 2002, the purpose of the Clean Creek Program (CCP) is to monitor and track long-term trends in the water quality and biological communities of streams in the Deckers Creek watershed.

Pollution → Solution → Restoration

13

We monitor water chemistry and biological communities at 13 sites throughout the watershed, including 9 locations in Deckers Creek and 4 sites in major tributaries.

Data collected and published through this program are used to steer restoration efforts, to evaluate restoration success, and to educate community members, leaders, and students on the steps being made to improve current conditions and to protect Deckers Creek in the future.

CCP Results

The State of the Creek results for 2010-2013 are broken into three categories: water, fish, and stream insects.

Water Chemistry

AMD remediation projects are improving water chemistry in Deckers Creek. There is a small amount of AMD in the uppermost segment of the creek, a large impact from AMD in Kanes Creek, several smaller sources of AMD through Masontown, and then improved water quality as Deckers flows through a region of limestone bedrock; however, these improvements are lost when it reaches the Richard Mine. This mine is the largest contributor of AMD into Deckers Creek below Dellslow. AMD remediation projects continue in the upper watershed, but until the Richard Mine's discharge is treated, it will remain a barrier to securing a healthy watershed.

Remediation

Friends of Deckers Creek is currently operating 6 treatment measures in the upper watershed in the Masontown and Reedsville areas. These treatment systems introduce alkalinity to an AMD discharge, which neutralizes the acid and causes the dissolved iron and other metals to precipitate out. Most of our efforts are focused on the main stem or tributaries of Kanes Creek. Clean water is eventually introduced back into the natural environment.

Each project takes several years of work establishing partnerships with landowners, securing funds, designing treatment schemes, and finally implementing a project.

CCP Monitoring Sites

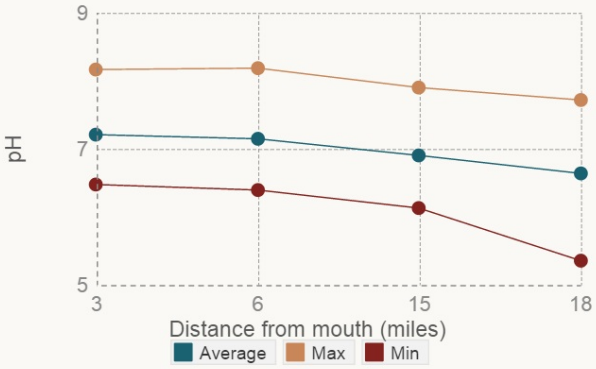
Mainstem Sites	Distance from Mouth
Valley Crossing	1
Sabraton	3
Dellslow	6
Gorge	7
County Line	11
Masontown	13
Kingwood Pike	17
Airstrip	18
Zinn Chapel	20

Tributary Sites	Distance from Mouth
Aarons Creek	3
Tibbs Run	6
Dillan Creek	15
Kanes Creek	18

The Richard Mine is located 5 miles from the mouth of Deckers Creek

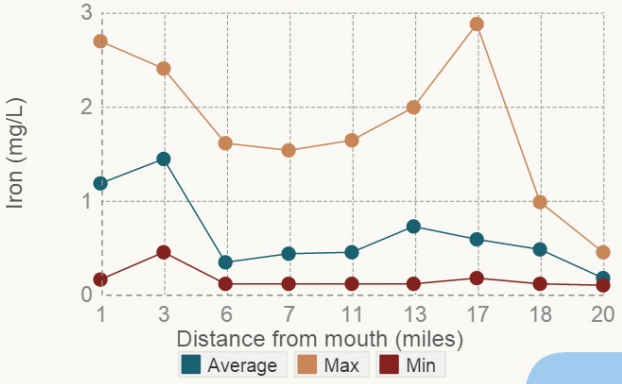
pH of Deckers Creek 2010-2013

pH of Deckers Creek tributaries 2010-2013

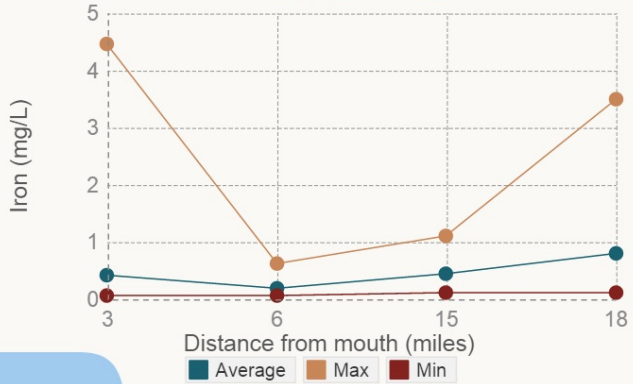


Streams with pH values below 6 indicate the water may be too acidic to support rich aquatic life.

Total iron in Deckers Creek 2010-2013



Total iron in Deckers Creek tributaries 2010-2013



Iron concentrations higher than 1.5 mg/L do not meet WV water quality standards.

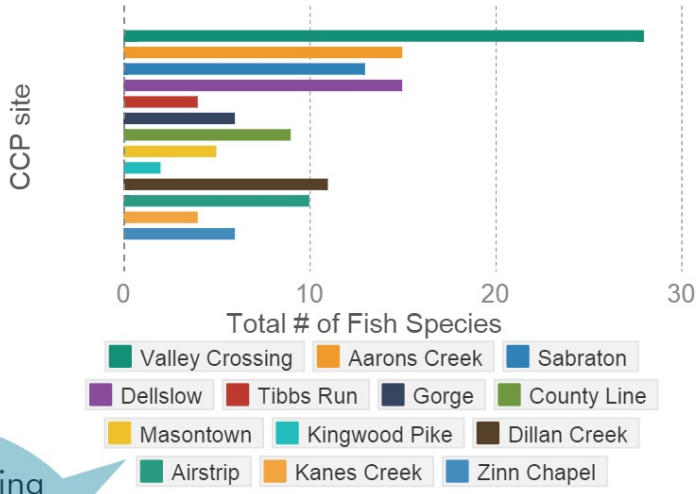
The WV Department of Environmental Protection has recently listed Deckers Creek as "impaired" concerning high fecal coliform levels. High fecal coliform and bacteria levels can be caused by failing septic systems, illegal straight pipes, combined sewer overflows, and agricultural inputs.

Fish

Deckers Creek has seen improvements in fish communities since the implementation of AMD treatment in the upper watershed. Experts have said Deckers Creek has the potential to be a world-class smallmouth bass fishery if further improvements are made.

As of 2010, we have been partnering with the WV Division of Natural Resources to stock Brown Trout in the Gorge area.

Total number of fish species found between 2010-2013



Fish from the Monongahela River swim into Deckers Creek.

A chemical barrier stops the fish from swimming past Sabraton. This barrier is caused by the Richard Mine.

Valley Crossing has the most diverse fish community in the watershed due to its proximity to the Monongahela River.

Dellslow is the best place for fishing! This site has smallmouth bass, largemouth bass, and brown trout!

A few of the most common fish in Deckers Creek and its tributaries are:

Bluegill, Bluntnose Minnows, Central Stonerollers, Creek Chub, Fantail Darters, Green Sunfish, Northern Hogsuckers, Smallmouth Bass, Spotted Bass, White Suckers, and Yellow Bullheads.

Benthic Macroinvertebrates

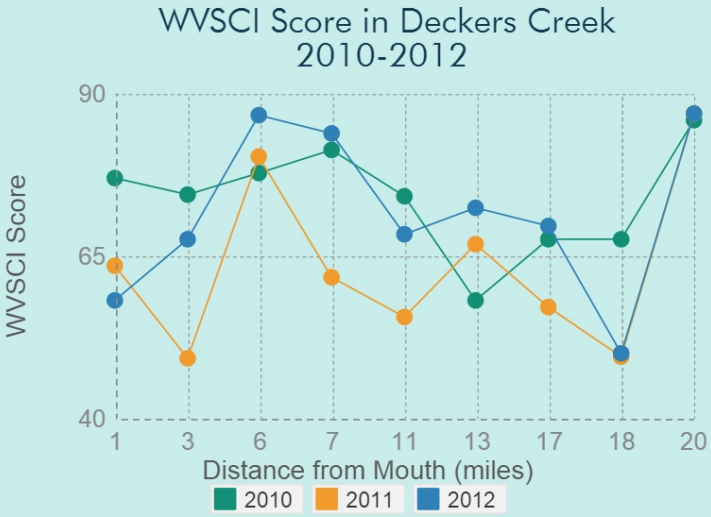
Aquatic benthic macroinvertebrates, or "stream invertebrates", are small creatures that you can see with your eye, have no backbone, and live in the sediment at the bottom of waterways.

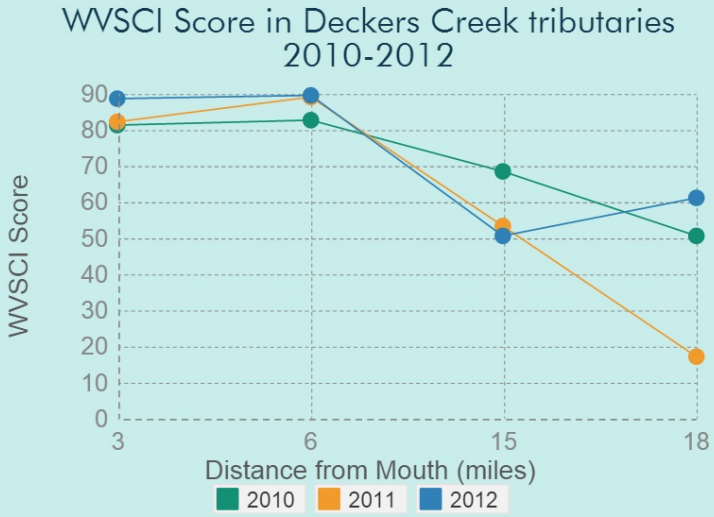
If a stream supports many different types of insects in large quantities, it indicates good water quality. Polluted streams have fewer types of macros, usually dominated by one or two tolerant types.

Stoneflies and mayflies are less tolerant species. Therefore, their presence in a stream tells us the water quality is good.

We use the West Virginia Stream Condition Index scores to calculate the quality of each site's stream macroinvertebrate community.

>85	85-70	69.9-55	<55
Excellent	Good	Marginal	Poor





Macroinvertebrate communities typically follow water quality patterns. The best scores are typically found in the Deckers Creek headwaters and the Gorge area. Degraded macro communities are seen near sources of AMD.

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Thank you for making this program possible!

Interested in becoming a Clean Creek Program Sponsor?

With a donation of $300, you will receive regular business member benefits plus recognition on our CCP web page and press materials. We will also work with you to make a presentation at your place of business.

Friends of Deckers Creek

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