

THE CATALYST

SLIPPERY ROCK WATERSHED COALITION MONTHLY ACTIVITIES UPDATE

NEXT MEETING: TBD per COVID-19 regulations; tentatively planned for 7 PM on 2/10/22 at Jennings Environmental Education Center. Pizza/pop return; social distancing will be followed. December and January meetings were cancelled.

An Intern's Update - November 2021 Water Quality Summary

Hello! My name is Isaac Busler, and I am a Senior at Butler Senior High School. I am currently the water monitoring intern working at BioMost, Inc. The first job I had after accepting my internship was to install conductivity data loggers and download that data from various water sources in the Slippery Rock Creek watershed. After downloading the water data from the loggers, I post-processed, analyzed, and prepared it for publication. I will be uploading the information to the SRWC website in the next few months. A map of the sample locations can be found on the last page of the newsletter. Water samples collected in November were also sent to a lab to further analyze the quality of water from those sources (see results below).

Of the twelve locations that were tested and analyzed, Upstream Lake Arthur clearly contained the most total suspended solids (TSS) with 19 mg/L while the remainder of the sample sites all have less than 5 mg/L. All twelve sources have relatively good pH levels, with a high of 8.21 pH from the Slippery Rock Gage and a low of 7.12 pH from Upstream Lake Arthur. Upstream Lake Arthur also has the highest amount of iron in the water with 1.16 mg/L, which is most likely explained by the high levels of TSS. The other eleven locations showed iron concentrations well below 1 mg/L, with the next highest being 0.72 mg/L coming from Rock Falls and the lowest being 0.18 mg/L from Downstream Lake Arthur.

A correlation between the alkalinity and pH levels can be observed, as the higher the pH levels are the higher the alkalinity levels are and vice versa. The highest alkalinity level recorded was 111.2 mg/L from the Wolf Creek Mouth and the lowest was 32.0 mg/L from Downstream Lake Arthur. The Wolf Creek Mouth also has a relatively higher pH, while Upstream Lake Arthur has a relatively lower pH and helps in confirming this correlation. In regard to sulfate (SO₄), which indicates an influence from mining, Boyers has the most with 186.3 mg/L and Downstream Lake Arthur has the least with 32 mg/L. The data also shows that the levels of manganese and aluminum roughly follow the same pattern concerning iron. The more iron in the water, the higher the levels of manganese and aluminum are in those same locations and vice versa with a smaller concentration of iron. Boyers also has the highest specific conductivity with 548 µS/cm and Downstream Lake Arthur has the lowest with 199 µS/cm. Overall, the water quality snapshot shows that the passive treatment systems in the headwaters of Slippery Rock Creek continue to effectively treat the mine drainage with buffered streams and low levels of metals.

	Sample Location	Lab pH	Sp. Cond (µS/cm)	Alk. (mg/L)	Acidity (mg/L)	Fe (mg/L)	Mn (Mg/L)	Al (mg/L)	SO ₄ (mg/L)	TSS (mg/L)
↑ FLOW	01 - Slippery Rock Gage	8.21	416	87.2	-75.3	0.26	<0.05	<0.10	68	<5
	02 - Downstream Lake Arthur	7.58	199	32.0	-19.6	0.18	0.15	<0.10	25.8	5
	03 - Upstream Lake Arthur	7.12	217	38.5	-29.4	1.16	0.54	0.26	29.5	19
	04 - Kennedy Mill	8.01	437	94.6	-81.0	0.33	0.09	<0.10	71.8	<5
	05 - Campground	7.88	437	78.9	-72.5	0.37	0.18	<0.10	86	<5
	06 - Wolf Creek Mouth	8.18	425	111.2	-97.0	0.32	0.05	<0.10	38.5	<5
	07 - Grove City	7.79	322	86.6	-76.1	0.61	0.15	<0.10	31.5	<5
	08 - Rock Falls	7.81	427	67.2	-58.8	0.72	0.35	0.11	106.2	<5
	09 - Big Run Mouth	7.51	364	46.1	-39.2	0.49	0.50	<0.10	76.1	<5
	10 - South Branch Mouth	7.59	340	70.4	-61.0	0.53	0.27	0.19	59.8	7
	11 - Branchton	7.64	496	68.2	-59.2	0.54	0.34	<0.10	136.9	<5
	12 - Boyers	7.14	548	33.0	-24.7	0.47	1.10	<0.10	186.3	<5



SRWC intern Isaac Busler, a Senior at Butler Senior High School, analyzes water quality data gathered as part of his internship (see front page article for more).

Upcoming Winter Fun at Jennings Environmental Education Center

Prairie Improvement Day: January 15

Shake off those mid-winter blues by pitching in at Jennings Environmental Education Center on Saturday, January 15th from 9:00 a.m. to 1:00 p.m., for our annual Prairie Improvement Day. The Jennings staff is looking for individuals willing to spend a Saturday morning outdoors to help manage the unique prairie ecosystem. For lunch, generous local restaurants will provide plenty of warm, hearty soup. Participants must be age 12 or older and should dress for the weather, including gloves and warm, waterproof boots. Please register for this program no later than January 10th by clicking the register button on the JEEC web site, or by contacting the Center at 724-794-6011.

Full Moon Winter Night Hike: January 16

“A Glimpse Into the Past” is a free event, no registration required. Join Jennings staff for an evening hike lit by the full moon. Enjoy the stillness of the nighttime forest while listening to stories of the the people and places of Jennings’ past. End the evening by the light and warmth of a campfire. The hike will be led by Jennings staff and will cover approximately one mile on Jennings’ Center side trails. The route will traverse varied and uneven terrain through the forested trails. The hike is rated “easy,” for those who are able to cover the distance and some sloping areas under winter conditions.

Self-Guided Winter Tree Walkabout: January 29 through February 6

Despite the missing leaves, it is still possible to identify trees in winter. Enjoy a winter walk as you learn the tips and tricks of winter tree ID along with some natural tree history during this special, limited-time only, self-guided walkabout. The program is free and no registration is required. Visitors can pick up a guide and follow a designated route to discover the secrets of winter tree ID. The printed guide and experience are available sunrise to sunset January 29 — February 6 beginning at the Center entrance. The route contains some steps and uneven terrain, but is generally easy. A mask is recommended, as social distancing on the trails during this time may be difficult. For more information call the Center at 724-794-6011.



The KIDS Catalyst

SLIPPERY ROCK WATERSHED COALITION FUN ACTIVITY



Winter Animals Crossword Puzzle

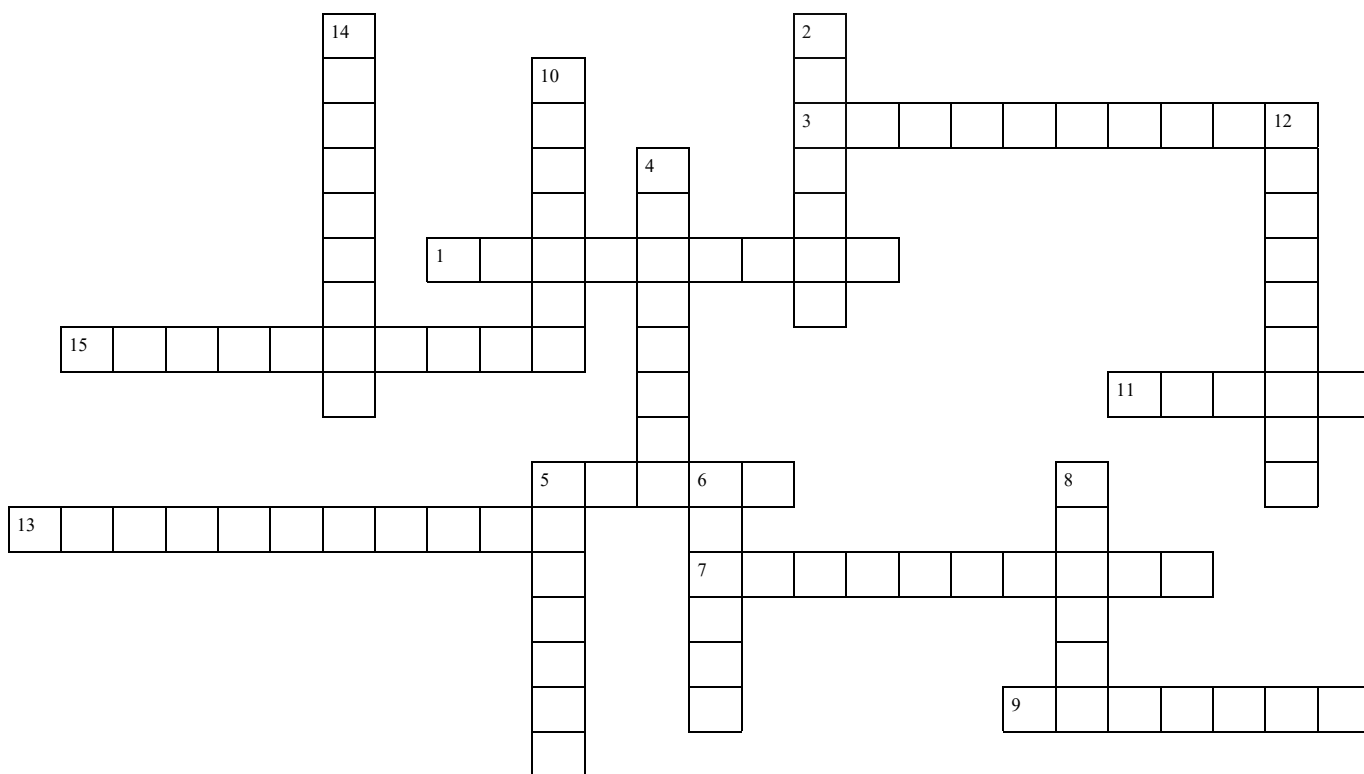
Many animals have some amazing adaptations to survive those cold, harsh winter months! The crossword puzzle below will highlight some of them. We hope you learn a thing or two and have fun filling in the puzzle. If you send us your completed paper, we'll give you a \$1 Amazon credit through a parent's email! You can save your credits to buy yourself something really cool!

ACROSS:

1. Some animals like bears, bats, and bumblebees will _____ during winter, going into a deep sleep when the food supply runs low and temperatures drop.
3. These furry animals live in burrows underground in the winter. A famous one in Punxsutawney helps predict when winter will end.
5. Even though _____ bears look white, their skin is actually black, and their fur is see-through. The hairs of their fur are hollow and light bounces off of them.
7. White animals can blend in with snowy surroundings. This is called _____ and it helps them be safe from predators.
9. In 45 of the US states, this month is the coldest.
11. Bats hibernate in _____, while bears hibernate in dens.
13. Fish survive in frozen ponds because the ice layer is insulation to raise the water's _____.
15. Types of this bird either migrate or stay for winter; they make holes in trees to live in using their very long pointy beaks, and eat nuts and seeds instead of their usual insects. Their pecking can be quite noisy!

DOWN:

2. Many birds _____ seasonally, moving north to south along a flyway between breeding and wintering grounds. Monarchs and some whales do this, too.
4. This bright red bird is common in backyards, where they look for sunflower seeds and suet.
5. Many of these flightless black and white birds live in the Antarctic, but actually New Zealand is known as the _____ capital of the world.
6. This cute, white, furry fox is native to Arctic lands, and can survive temps as cold as -58 degrees F! It has a thick furry coat and retains its heat in its paws.
8. This northern state is known for its glaciers, polar bears, caribou, reindeer, whales, puffins, sea otters, etc.
10. This thick layer of fat in seals, walruses, and whales helps animals stay warm in freezing cold oceans.
12. These animals collect and bury food like acorns in the fall, then eat from their storage unit during winter; they also can make huge warm nests high up in trees.
14. The bird called the black capped _____ is only 5 inches long, but can survive winter by dropping its body temperature to freezing at night.



Name _____ Age ____ Parent email address: _____



Slippery Rock Watershed Coalition c/o Stream Restoration Incorporated
A PA Non-Profit Organization
434 Spring Street Ext.
Mars, PA 16046

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Data Logger and Water Sample Location Map

