LOCAL NEWS

Solano County students learn about biomonitoring

Benicia High class collects data at Adler Creek in Hiddenbrooke

Benicia High School seniors Ryan Webb, right, and Robert St. Jacqes test the turbidity of Adler Creek as students check the health of the creek as part of a Solano County High School Biomonitoring Program in Vallejo on Wednesday. (Chris Riley/Times-Herald)

By THOMAS GASE | tgase@timesheraldonline.com | Vallejo Times Herald

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Solano County students interested in biomonitoring had the chance this week to experience a field trip that was right up their alley.

Or in this case, creek.

The county's high school biomonitoring program kicked off its 15th year of community science on Wednesday and Thursday by monitoring the health of local creeks. This week that location was at Adler in Hiddenbrooke. There were approximately 25 Benicia High School students participating each of the days.

With the recent winter rains, creeks are rushing fuller and faster through Solano County communities this spring. On Wednesday the class took samples from collected data on the physical, chemical, and biological aspects of the waterways. To perform the biological assessment, students collect and count macroinvertebrates using a non-lethal method developed by Dr. Patrick Edwards of Portland State University.

Participants collect the organisms from riffles in the creek, identify them, and return them to their habitat. Then they use that data to calculate the creek's Index of Biotic Integrity, which provides a valuable indicator of the creek's health. Students also use a water quality probe and test tube kits to measure levels of dissolved oxygen, nitrates, and other substances in the creek's water.

Finally, students use their observation skills and their knowledge of what makes a healthy riparian zone to assess the condition of the creek habitat. The data students collect on the field trips contributes to a 15-year study of Solano County creeks monitored by Dr. Edwards and facilitated by the Solano RCD Education Program educators.

Education Program Manager Shea Kinser helped guide one group of students' data on Wednesday.

“I love watching the students gain confidence in themselves,” Kinser said. “I grew up in Texas and we had a lot of outdoor education. I think that’s a lot of the fun for the students today — just being outdoors. They measure the stream flow of the creek as well as the dissolved oxygen levels and the vegetation around the creeks. The students also calculate the IBI (Index of Biological Integrity) levels of the creek to see just how healthy the creek is. When they get back to a classroom setting they will find out what the data shows.”

Kinser said she often gets students more interested in working in the field after participating in the program.

“They learn about the creek’s health, but it also instills in them to be good stewards of water resources,” Kinser said.

Benicia High School students measure the width of Adler Creek as they check the health of the creek as part of a Solano County High School Biomonitoring Program in Vallejo on Wednesday. (Chris Riley/Times-Herald)

Emily Hudson, who has been teaching the environmental science class since 2015, loves seeing the students get involved — even if she sometimes believes that the students are even more thrilled about just leaving campus and missing some of their other classes.

“It’s a real life experience and they get to use different tests to collect data,” Hudson said. “I definitely saw some of the students perk up a little more and get excited

Over 500 students from nine different schools will participate in the Biomonitoring Program this spring. Kinser noted that whether it's putting on a pair of waders and holding a d-net in the creek or collecting a water sample and testing it for phosphates and nitrates, students gain valuable scientific field experience they can put on their resumes.

One of Hudson's students, Benicia High junior Mia Raupach, said she was enjoying collecting the data.

"More than anything I like being able to act and see how the data is collected," Raupach said. "I'm very interested in environmental science, so I'm glad we have this class and field trip. You get to learn about all the cycles, whether it's testing the PH levels or the conductivity or dissolved oxygen and the depth of the water. It's all interesting to me."

In addition to the field trip, students participate in two classroom lessons that include hands-on activities to introduce them to the terminology and techniques involved in the assessments they will perform on the field trip. A third classroom lesson after the field study teaches students how to analyze the data they've collected and engages them in important conversations about how to improve the health of creeks in their area. Students also hear about opportunities working in careers in water.

Raupach said she's anticipating seeing the results from her samples.

"It's been a little sunnier here the last week or so, but because of the rains it's a lot more greener than usual. I want to look at the micro and macro organisms and see just what kind of creatures are surviving in the area. I think it's not perfect, but it is closer to healthy creek than a nonhealthy creek. Let's see what the professionals say."

Solano Resource Conservation District's Solano County Biomonitoring Program is free to participating schools and is made possible through funding from the Solano County Water Agency; Solano County Department of Resource Management; Vallejo Flood and Wastewater District; Fairfield-Suisun Sewer District; and the City of Benicia.

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