2:45pm – 2:55pm

Real-time GIS Reporting—Successful Use of ESRI's Collector App During Watershed Assessments

Jackson Ayers[*1], Kirk Smith[2]
*Presenting
[1] James Madison High School, Vienna, VA
[2]Environmental Science and Policy George Mason University Fairfax, Virginia 22030

Logistical complexities of watershed assessments--field testing, land use surveys, laboratory coordination, data compilation and reporting—are time consuming, often requiring many months before information is available to interested parties. One volunteer group, backed by Trout Unlimited and Fairfax Water, has streamlined the process. Utilizing a state-of-the-art brook trout watershed assessment protocol and ESRI's Collector App to log instantly accessible georeferenced data points, students from James Madison High School, Vienna, VA, can report field assessment results while onsite. Headwaters of four watersheds (South River, Greene County; Wildcat Hollow and Fiery Run, Fauquier County; Catharpin Creek, Prince William County) have successfully been assessed by the students. Activities have been coordinated and results shared with DGIF professional biologists. Procedures for quality control and assurance are routinely followed in order to produce accurate, verifiable data. While land use information is compiled offsite, dissolved oxygen (mg/L), water temperature (ºC), and riffle-run quality (0 – 20) is collected from a randomly selected 75 meter stream reach within each watershed and recorded within the Collector App. Upon returning to data service or Wi-Fi service, cached data is uploaded to a shared web map within ESRI's Arcgis Online portal. Collected data fields may be modified and designed by any group in any study. Academics and professionals can instantly access data for research or natural resource management.

Type: Lightning talk

Is the presenter a Student or a Professional? Student

2:55pm – 3:05pm

Virginia's State Fish Surviving in Suburban Waters of Our Nation's Capital—A Lofty Dream or a Scientifically Sound Possibility?

Emily Garcia*[1], Kirk Smith[2]

*Presenting

[1]James Madison High School, Vienna VA

[2] Environmental Science and Policy George Mason University Fairfax, Virginia 22030

Utilizing state-of-the-art science and technology, students of James Madison High School, Vienna, Virginia, have identified a subwatershed possessing attributes favorable for sustaining brook trout (*Salvelinus fontinalis*). Beginning in 2014, Madison students embarked on a mission to locate new release sites for fingerling brook trout raised in the classrooms of over 20 Northern Virginia schools. In coordination with the Department of Game and Inland Fisheries (DGIF), Trout Unlimited and other entities, students assessed the headwaters of Catharpin Creek (Prince William County, VA) and found the subwatershed possessed qualities conducive to sustaining brook trout. Watershed assessment included instream water quality measurements: dissolved oxygen (11.8 mg/L), water temperature (10.6 ºC), riffle run quality rating (11 out of 20) and land use evaluation (percent in agriculture—0%), distance to the nearest road (29.3 m). To date, assessments have not incorporated any biological information. Future assessments will now include an additional water quality index rating utilizing the results of stream biomonitoring; a macroinvertebrate species richness index developed specifically for citizen monitoring. Biological information will further expand a multimetric approach. Preliminary measurements of macroinvertebrates in Catharpin Creek indicate the stream harbors a notable amount of macroinvertebrates intolerant of pollution. Unfortunately, protocol did not allow for an official index rating due to an insufficient sample size. In the spring of 2017, Madison students will conduct macroinvertebrate assessments at several locations in the headwaters of Catharpin Creek to establish an overall baseline rating. In late spring, brook trout will be introduced. Post brook trout introduction watershed surveys will be conducted yearly, every spring.

Type: Lightning talk

Is the presenter a Student or a Professional? Student