December 20, 2018 (the last full day of Fall)

Hello Master Water Stewards!

The IDAH₂O program had a very good summer and fall, adding 62 Master Water Stewards, plus certifying 60 Project WET K-12 teachers. We added 32 new monitoring sites and had first-ever IDAH₂O workshops in Ashton and Preston, ID.

IDAH₂O is continuing with an impactful partnership with The River Mile (https://therivermile.org/) to develop a new crayfish citizen science module for IDAH₂O Master Water Stewards to learn and implement. We can provide valuable data to researchers studying population ranges of Idaho’s three native and several invasive, non-native crayfish species. It is also intended to help satisfy additional lifelong learning interests of many Stewards who responded to the survey last year. It will give those Stewards with a lake or pond site additional parameters to keep track of.

In addition, IDAH₂O is working with NOAA’s Phytoplankton Monitoring Network to incorporate a cyanobacteria (Harmful Algae Bloom, or “HAB) monitoring citizen science module. We are doing this to help limnologists to better understand how cyanobacteria blooms affect our lakes and streams.

Read on for more on all these activities. I know it seems late in the year for a Fall-themed newsletter, but we have been so busy, we wanted to capture everything we could!

Happy monitoring!

Sincerely,

Jim Ekins
Summer-Fall Synopsis, 2018

By Jim Ekins

University of Idaho Extension Water Outreach program had another busy summer and fall. Here's a quick overview of this summer/fall water quality teaching-related highlights.

IDAH₂O workshops included Lewiston, Sandpoint, Coeur d'Alene, Ashton, and Preston, ID. We introduced IDAH₂O in Washington State, in Cusick with Selkirk Alliance for Science. IDAH₂O added 62 new Master Water Stewards this year, bringing our ranks close to the 500-mark, at 496!

IDAH₂O is developing two new citizen science opportunities. A previous survey of Stewards indicated that people are hungry for new and additional learning opportunities. Plus, I've long known the IDAH₂O protocol is less robust for standing water (lakes and ponds) than it is for wade-able streams. Therefore, in partnership with several multistate partners, I am developing a crayfish observation and a cyanobacteria bloom detection project.

I attended many informational events through the seasons. I brought the Stream Table to the Moscow farmers market, delivered a mini-Project WET training for Blaine County staff and interns, and worked with Extension Forestry to help teach a Stream Restoration workshop. The CDA Chamber of Commerce's inaugural Coeur Fest had a strong natural resources conservation message. And I worked with a school for students that have great difficulty learning in traditional school environments, Wired2Learn, to provide hands-on, investigative water science learning.

I was engaged with a lot of scholarly and creative writing. With support from many partnering organizations, Extension Water Outreach published eight educational videos. These can be found on the University of Idaho College of Ag and Life Sciences (CALS) YouTube channel: https://www.youtube.com/playlist?list=PL6g6ZYcM47s9HM-DtPaxT44P-hx9AhmwRS. I wrote an Extension publication with Graphic Design Intern Mercedes Rennison, “Protecting Streams and Lakes in Idaho: A Landowner’s Guide” available here: http://www.extension.uidaho.edu/publishing/pdf/CIS/CIS1228.pdf. I published a research article in Journal of Extension, too: “Extension Involvement in Collaborative Groups: An Alternative for Gathering Stakeholder Input”, found online here: https://www.joe.org/joe/2018april/iw5.php. The IDAH₂O Educational Playing Cards are available for purchase (along with other water related publications) via the CALS Publications Catalogue: http://www.extension.uidaho.edu/resources2.aspx?title=Water&category1=Water&category2=Water%20Quality. Finally, a little bit more scholarly and creative writing landed IDAH₂O $12,731.45 in grant funding for the year.

In May, I helped lead the Pend Oreille and Coeur d'Alene Water Festivals. Each consists of two days with 200 5th graders circulating among 30-minute learning stations. While the Pend Oreille Festival has a 30-year history, it was the inaugural year for Coeur d'Alene’s. The Idaho Youth Water Summit, part of The Confluence Project (TCP), was another big success with 300 Idaho high school students presenting year-long investigative research projects at a youth scientific conference. Hayden Meadows and Farm to Table Day events enabled hundreds more 5th grade students to learn about clean water. Lewiston High School brought science students to Hells Gate State Park to study Tammany Creek's chemical/physical attributes and aquatic macroinvertebrates using IDAH₂O. I continue work with a stellar team of science leaders to engage 450 new TCP students in IDAH₂O water quality monitoring. All told, I taught water to 4,364 K-12 students.

Summer circuit teaching included teaching for an entire week at the Central Idaho Natural Resources Camp near Ketchum, ID, and three days each at the 4-H CL2NI (“Camp Wooten”), and the Benewah County Natural Resources Camp outside of St. Maries.

Project WET workshops including a rousing time with UI pre-service teachers, a delightful small workshop in Preston, and a multiday WET and Project WILD River Ecology workshop that included three days of hands-on experiences on the Salmon River.

I spent a lot of time with City of Coeur d'Alene workers and local volunteers to build an outdoor classroom near the UICDA campus. I am also working on a second outdoor classroom and stream restoration project with Hells Gate State Park along Tammany Creek.

Continued on page 4: “Synopsis”
New Citizen Science Modules

By Jim Ekins; previously published in the Project WET blog:
http://www.extension.uidaho.edu/resources2.aspx?title=Water&category1=Water&category2=Water%20Quality

University of Idaho Extension Water Outreach is developing two new citizen science modules to add onto the existing IDAH2O water quality monitoring framework, which complements the Project WET Healthy Water, Healthy People Water Monitoring protocol. One of these is a crayfish population study, in partnership with the Columbia River-wide The River Mile, administered by the Lake Roosevelt National Recreation Area. The other is a cyanobacteria detection study, in partnership with NOAA's Phytoplankton Monitoring Network. We are working to complete the online- and in-person modules by Spring 2019. The Crayfish module should be completed by April, and the HAB module should be available by June.

Crayfish (or crawfish or crawdads or mudbugs) live in waterways ranging from small mountain streams to big rivers to lakes and reservoirs. Crayfish are important species because they can eat a wide variety of foods from varying trophic levels, or feeding positions in a food chain or web. Crayfish population densities can become very high, with strong effects on the local waterway ecology. They are moderately pollution-tolerant.


Considering the ecological, economic, and historical importance of crayfish, population studies of native and invasive species are rare. In general, the ecological function of non-native crayfish is very different from that of native species. Introduction of non-native crayfish regularly results in the transformation of lakes and wetlands from clear to turbid by excessive burrowing and consuming large areas of aquatic plant beds.

Participation in the Crayfish Study is open to anyone wishing to assist. School groups can complete tasks such as collecting species identifications, counting the number of crayfish observed, recording the latitude and longitude of locations observed, measure water quality and more. All levels of participation and observation are contributing very important scientific data. Scientists need to know what species are out there and where.

For more information about crawfish data collection using The River Mile parameters, visit: https://therivermile.org/network-projects/the-river-mile-crayfish-study/crayfish-study-participation/.

The second new learning module is a cyanobacteria detection study that looks at harmful algae (cyanobacteria) blooms (HABs), an increasing global phenomenon usually due to changes in nutrient concentrations in waterways. HABs have resulted in mass losses to livestock, irrigated agricultural productivity, wildlife, house pets and drinking water supplies. Continued on next page: “Modules”
Before I close, I have two related personal challenges to highlight. I just submitted a dissertation proposal. I am working on a PhD about Extension teaching. I plan to research how non-formal, community based teaching programs improve community resiliency. Second, as a university faculty member, I am engaged in the formal tenure process. It’s tedious, and time consuming, but it allows me to reflect on what it takes to build a robust statewide volunteer citizen science program. Did you know that in five years, IDAH₂O grew from 50 Stewards/71 sites, representing 10 watersheds, to 496 Stewards/253 sites, representing over 120 watersheds? Third, I am in a leadership role in writing Extension’s plan of work for the next five years. Water and citizen science are prominent issues, and I am ensuring that Extension Water programming is among the priority Extension teams working on solutions. I will even highlight our successes to our elected leaders in Washington, D.C. in April as a representative of the Public Issues Leadership Development (PILD) conference.

“Modules”, from previous page

Extension Water Outreach contacted the NOAA National Phytoplankton Monitoring Network (PMN) to inquire about providing HAB identification training to Idaho citizen scientists. PMN has been active in monitoring harmful algae in coastal waters for some time. About two years ago, they joined with the EPA to include freshwater HABs monitoring in inland areas. Volunteers identify five target cyanobacteria species, and then submit the info online. For more information about NOAA’s PMN program, visit: https://coastalscience.noaa.gov/research/stressor-impacts-mitigation/pmn/.

Cyanobacteria bloom Fernan L. 2015 Source: IDEQ
U-Idaho Extension Water Outreach greatly benefitted from Steve Van Horn, our summer intern’s, hard work. I hesitate to use the term, “intern”, as his skills and experience allowed him to jump in with the effectiveness of a regular staff member. So we gave him the working title of "Assistant Water Educator. Steve began his schooling at North Idaho College where he quickly became enamored with the natural sciences and obtained five Associate of Science degrees in: Biology, Botany, Zoology, Environmental Science, and General Studies. He transferred to U-Idaho and continued studying Environmental Science and earned his Bachelor of Science degree in Fall, 2018.

At NIC, he performed research with INBRE and EPSCoR, most of which was focused on local eutrophication issues, and in 2018 he took over as the INBRE Coordinator for NIC INBRE/EPSCoR interns and fellows while taking on an Assistant Water Educator role for the University of Idaho Extension. He cites is passion for the outdoors of the Pacific Northwest as the driving force behind his determination to make a positive impact on the world in an effort to sustain its beauty and its ecosystem services. Outside of work Steve loves spending as much time as possible outdoors fishing, camping, and hiking with his friends, family, and his Golden Retriever, Monroe.

Idaho Water Resources Research Institute tests new citizen science data platform!

The Idaho Water Resources Research Institute (IWRRI) team is currently developing a beta-testing laboratory to be used in tandem with future citizen science water quality projects. Beta-testing involves the systematic testing of water quality testing tools prior to their use in the field. Its primary function is to evaluate the accuracy, precision and ease of use of water quality tools prior to their dissemination to the community.

IWRRI also sent Melissa Topping, a water resources master’s student, to the Rocky Mountain Citizen Science Conference in Cody, Wyoming, November 29 – December 2, to present on the importance of beta-testing water quality tools. Her presentation touched on previous crowd sourced water quality projects and IWRRI’s future campaigns, which will focus on the collection of water borne nutrients, principally nitrogen and phosphate. Keynote speakers at the conference included Geoff Lebaron, the director of the Christmas Bird Count, and Greg Newman, the director of CitSci.org.

Summer 2018 Intern, Steve Van Horn
SUMMER/Fall 2018 PHOTOS

No more words! Here are some fantastic photos from the Summer and Fall water seasons:

Remember to contact us if you need any replacement supplies for your IDAH2O kits. If you are no longer using your kit on a regular basis, I can re-assign it to another Master Water Steward!
And, I would love to visit your stream or lake monitoring site. Simply send me an email and I’ll work with you to schedule in a visit.