# The Current

VOLUME 2, ISSUE 2

IWRRI

Idaho Water Resources Research Institute

## NOTE FROM THE DIRECTOR:

**BY ALAN KOLOK, DIRECTOR**

As I write this, undergraduate students have begun their annual migration back to Moscow to begin their next academic semester. As the students move back into town, the Water Institute is delighted to be entering into the 2019-2020 academic year. Below are just a few of the exciting events and opportunities that are coming up this fall.

As has been true for the last few years, the Water Institute is pleased to co-sponsor the Water Resources Seminar Series in conjunction with the Water Resources Graduate Program. The seminar series will occur every Tuesday at 10:30am in CNR 14. The full schedule of seminar speakers will be released soon (check our Facebook page) and I am sure that it will be a great line up.

A new adjustment this year, is that we are moving the Annual Water Symposium to the fall semester. April just proved to be too busy for everyone, and we wanted it to occur in a more relaxed time of year. Consequently, the symposium this year will be November 12, 4-6PM A great way to ease into your Thanksgiving break, and we will be announcing a really exciting guest speaker, too!

Perhaps most importantly, there are some newly unveiled opportunities for U of I water faculty, staff and students. And by opportunities, I mean money for your programs! In this newsletter you will find announcements for our peer-reviewed paper publishing charge voucher, our graduate student travel voucher, and our graduate student Water Institute affiliate internship. These are real opportunities backed with real dollars to make them fly. We are looking to have a great year and are looking forward to working with you, whether you are down the hall or across the state. It really is a great time to be a Vandal, and we are ready to get busy.

# CRAYFISH PROJECT

**BY MEL TOPPING, MS STUDENT, WATER RESOURCES**

The Crayfish Project is a novel citizen science campaign that will be working in tandem with the River Mile Network, an educational program of the National Park Service, and other collaborators to coordinate a project that focuses on the distribution of native and invasive crayfish across the Northwest.

While the National Park Service is interested in monitoring the distribution of these species, the Water Institute is interested in using collected specimens as environmental sentinels to characterize the distribution of heavy metals across the region. The goal of this project is to use a network of volunteers to collect crayfish across the Columbia River Basin. Nodes of volunteers that are already involved in evaluating the distribution of crayfish will send animals to the University of Idaho, where their metal body burden will be evaluated.

This project has the potential to increase our understanding of the geospatial scale of heavy metal contamination across the entire Columbia River Basin.

Mel Topping

Topping Family Crayfishing

Signal Crayfish

# Save the Dates

## WATER RESOURCES SEMINAR SERIES

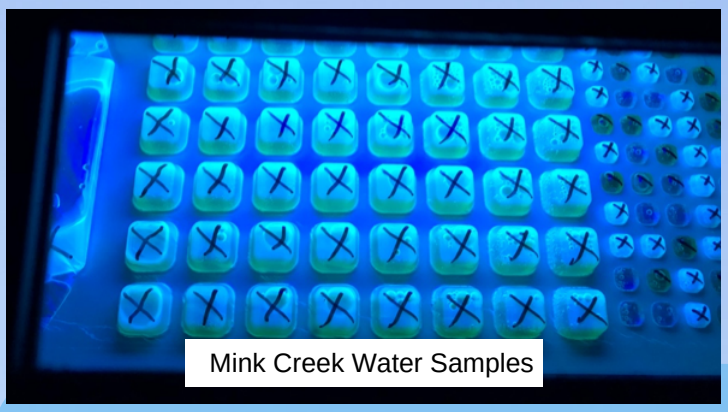
Every Tuesday 10:30 AM Aug 27- December 17

- Zoom 943-388-763
- Moscow: CNR 14
- Boise: Water Center 216
- CDA: Harbor Center

## THIRD ANNUAL WATER SYMPOSIUM

November 12, 2019

4-6 PM



Mink Creek Water Samples

Mink Creek. Pocatello, Idaho

# FECAL POLLUTION

### BY NIKHIL VISHWANATH, PHD STUDENT, WATER RESOURCES

The Water Institute is partnering with colleagues from the Rangeland Center (UI Boise), Idaho State University, Idaho Department of Environmental Quality (IDEQ) and the United States Forest Service (USFS) to conduct a study on fecal pollution in Mink Creek. The Mink Creek Watershed, located near Pocatello, Idaho on USFS land, supports multiple uses including cattle grazing and recreation.

In the summer of 2017, IDEQ conducted sampling at seven locations in the watershed and found water quality standards for fecal indicator bacteria (FIB) to be exceeded at all but one location. Fecal coliforms, a subset of FIB, have traditionally been used as an indicators for whether a water body is contaminated with fecal pollution that may pose a risk to human health. However, FIB can originate from several different sources including wildlife, livestock, and humans, thwarting efforts to implement management strategies to reduce their loads.

Fortunately, molecular techniques are available to determine the animal vectors of fecal pollution. The objective of the ongoing research is to conduct a sampling campaign in Mink Creek to determine the contribution of different animal vectors to the observed environmental FIB concentrations. These tools will ultimately measure the percent contribution from each suspected animal vector by determining the relative proportion of human- and cattle-associated bacteroides in each sample. This information, in combination with FIB counts (# of bacteria / 100mL of water), will provide managers with information necessary to bring the watershed into compliance with water quality standards.

Kids looking at macroinvertebrates

Macroinvertebrates under a microscope

Mel Topping assisting kids in learning.

# SCIENCE SATURDAY

### BY MEL TOPPING, MS STUDENT, WATER RESOURCES

On Saturday August 10, Mel Topping of the Water Institute lead a Science Saturday session in the University of Idaho Arboretum and Botanical Garden focused upon macroinvertebrates and their importance as indicators of water quality. Science Saturday is run by the Arboretum Associates during the summer and invites children to participate in different science lessons put on by community members. Fifteen children and their parents participated in catching, identifying, and asking questions about the insects found in the local water.

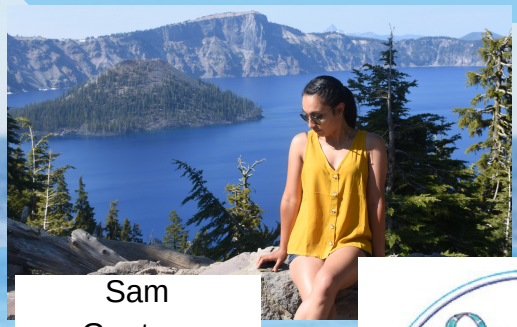
# WATER POLICY INTERN EXPERIENCE - IN HER OWN WORDS

**BY SAM GAUTAM, INTERN**

Namaste! My name is Samragyee Gautam and I am an international student from Nepal double majoring in Environmental Science and International Studies. I am passionate about climate change mitigation and want to learn more about international environmental policy making. This summer I had an awesome opportunity to work as a Water Policy Intern for the McClure Policy and Research Center. I was based in Moscow and worked with the Water Institute. This was an 8-week internship and in average I worked 20hrs/week. I helped with the Water Institutes's citizen science campaign to test the water quality in the Spokane River (the Long Lake).

My research question focused on if the Long Lake had excess nutrients level (specifically, nitrate and phosphate) that was polluting the river, and if it did then why the river does not have a TMDL (Total Maximum Daily Loads) for those nutrients. My supervisor, Dr. Alycia Bean, guided me throughout this research but, still gave me the freedom to design and shape it. This required setting daily goals and motivating myself to do the tasks, which was a bit of a challenge in the beginning. However, as the weeks went by, I learnt to motivate myself and realized that I enjoyed having the freedom to design and work on my research.

Overall, it was a memorable and educational experience. It reassured my passion to work for environmental policy and introduced me to some amazing people on my way.



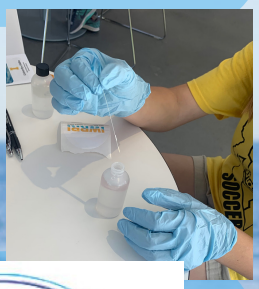
Sam Gautam

# MOUNTAIN WEST MINE TAILINGS, WATERSHEDS AND ADVERSE HUMAN HEALTH OUTCOMES

**BY NAVEEN JOSEPH, POST DOCTORAL FELLOW**

Metal contamination in drinking water is a serious health concern across the Mountain West of the United States. Around 160,000 abandoned mines and 500,000 discrete mine tailing contamination sources exist in this region, affecting approximatly one million people. The drinking water in this region can be contaminated with metals and metalloids including cadmium, mercury, lead, arsenic and uranium, all of which can directly impact the health of community residents.

In this context, the Water Institute, in conjunction with the University of Idaho's Northwest Knowledge Network and the Institute for Modeling Complex Interactions is investigating the relationship amung watersheds, the occurrence of mine tailings in the Mountain West, and adverse human health outcomes. The focus of this project is to generate a predictive classifier model that includes data from Oregon, Washington, Idaho and Western Montana. The health outcomes considered include birth defects and pediatric cancers, as these outcomes are expressed after short latency periods between environmental exposure and the onset of disease.



# STREAM: WOMEN IN SCIENCE, TECHNOLOGY, RESTORATION, ENGINEERING, ARTS AND MATHEMATICS

**BY KYRA SIMS, PROGRAM TECHNICIAN**

The young ladies of the STREAM camp had a great time with the Water Institute testing water for nitrate and phosphate levels in water collected by the campers. They got to dip rapid testing strips in the water samples to test water that they brought along. This activity featured professional women mentoring the girls; as Dr. Alycia Bean, MS Student, Mel Topping, and Water Institute/McClure Policy Center Intern, Sam Gautam shared their experience in science.

Overall, it was a great experience for everyone involved. Don't be surprised to find that some of these young ladies wind up becoming Vandals in STEM related disciplines.

Opportunities

# THE WATER INSTITUTE GRADUATE STUDENT AFFILIATE PROGRAM

The Water Institute Graduate Student Affiliate program is designed to assist graduate students working on water resource research. The affiliate program will provide financial support, up to $8,000 to a student that can be used as student stipend, tuition or both.

Requirements include that the student must;

- be a MS student or preferably a PhD Student at the University of Idaho,
- maintain at least a 3.5 cumulative GPA,
- be studying a discipline within water resources and
- agree to complete a 10 hour per week internship with the Water Institute.
- *for more information check out our Facebook page.

# THE WATER INSTITUTE PAGE CHARGE VOUCHER

The purpose of the Water Institute Page Charge Voucher is to assist USGS 104B grant recipients with funding for journal page charges - up to $250. This voucher seeks to assist USGS 104B recipients from 2017, 2018 and 2019

Requirements include that the primary author must;

- be first author, or the major advisor of a student first author, on the publication,
- be a 104B recipient from 2017-2019,
- acknowledge the Water Institute in their publication and
- submit an acceptance email or letter form the peer reviewed journal
- *for more information check out our Facebook page.

# THE WATER INSTITUTE GRADUATE STUDENT TRAVEL VOUCHER

The purpose of the Water Institute Graduate Student Travel Voucher is to assist graduate students working on water resource research with funding to advance their professional careers though attendance at regional, national or international conferences.

Requirements include that the student must;

- have been accepted to present their own research (poster or presentation) at a regional or national academic conference,
- be first author on the presentation or poster,
- present their research or project at the next Water Institute Annual Water Symposium
- acknowledge the Water Institute in the presentation or on the poster.
- *for more information check out our Facebook page.

# Contact Us

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