Ten students from UNR and UNLV, both undergraduate and graduate, participated in this year’s NWRA poster competition. Projects and posters were available for viewing both days of the conference with the formal Question & Answer poster session being held Wednesday evening.

During this time judges and conference attendees were invited to walk around and learn more about each student’s projects. With a great diversity in research areas, several students’ work stood out above the rest. All three poster winners were recognized for their research and awarded their monetary prize during Thursday’s luncheon. Once again, students from UNR swept the poster competition.

Second runner-up was Jasmine Vittori of ES (Developing a water balance model approach with tree-ring records to reconstruct past streamflow in the Upper Walker River Basin), first runner-up was Arica Crootof of GPHS (Assessing water resources in Khorezm, Uzbekistan for the development of aquaculture), and the first place winner was Jordan Beamer GPHS/DRI (Annual Evapotranspiration estimation from Landsat and flux tower data). Congratulations to all the students who participated in this year’s event.
Welcome to the spring semester! Don’t forget that our annual recruitment fair is scheduled for March 11 - 12, and encourage program-wide participation. We have a great set of recruits who are eager to see what the GPHS is all about! On Friday, March 11, the students will be taken on tours of UNR and DRI campuses, and meet with our faculty members. The day will end with students attending the colloquium in which Dr. Steve Loheide, will be speaking on “Hydrologic Controls on Vegetation Patterning of Meadows in the Sierra Nevada.” Following the seminar, I encourage all faculty and students to introduce themselves to the prospective students at the social. On Saturday, March 12, the recruits will be attending a snow hydrology workshop at the Sagehen Research Center. We will wrap the day up with an informal dinner and presentation which will be co-hosted by the SAIWI organization. The recruitment fair is an important component of the recruitment process, so please make an effort to interact with the prospective students.

By now most of you have heard about the potential budget cuts to the University System. Although final budgets will not be determined until the State budget is finalized, we are most likely going to incur a 15% cut next year. I have had numerous discussions with UNR and DRI administration regarding our future budget and it is evident that they do not wish to destroy the core mission of the institution or our program. With that said, we have to continue to look for additional cost-saving measures. I will continue to ensure that GPHS courses are taught and funding for teaching assistants and program officers remains in place. As always, I welcome any ideas you may have on how to make the program more efficient. I am confident that the program will continue to grow and thrive despite these tough times because of its great students and faculty.

As I final note, I would like to say how proud I am for our Program. Our faculty and students are amongst the best hydrologists in the world. Let’s continue to strive for greatness and work hard on making the program the best it can be.

Name: Kerensa Kruse
Where are you from? Mission Hills, California
Previous university and/or career? Sonoma State University, BSc Geology. Intern at Lahontan Regional Water Quality Control Board, South Lake Tahoe
GPHS: Hydrology or Hydrogeology? Hydrogeology
Research advisor and topic (BRIEF description)? Dr. Laurel Saito, EPSCoR Project: Climate change in Nevada and its effects on surface runoff
“The thing I’m most looking forward to this year is…” Field work!

I am currently a snow hydrologist intern at the Swiss Institute for Snow and Avalanche Research, SLF (Institut für Schnee- und Lawinenforschung). The institute is situated within the canton of Graubünden and the town of Davos Dorf in eastern Switzerland. It is surrounded by high alpine topography within a snow dominated hydrologic regime, making it a perfect place to study and work in the field of snow hydrology. While my job description seems to grow each week, I am principally tasked with the establishment and maintenance of a bi-weekly snow survey in the neighboring Dischma valley. We take snow depth and snow water equivalent measurements within each layer of the snow pack at varying elevations and topographic shade regimes in the valley. This database will eventually be comprised of six years worth of data to act as a verification database for a high resolution physically based snowmelt model (Alpine 3D). This has been a great learning experience thus far and has allowed me to continue my research that began at UNR and to also have the opportunity to participate in other snow hydrology projects throughout the Swiss Alps. By: David Moeser (M.S., GPHS ‘10)
The year of two summers...

In October I defended my dissertation, and after several weeks of tying up loose ends, visiting family, and a final trip up into the Sierras with a pack on my back, it was time to leave Reno. Since December, I have been a postdoctoral researcher at the National Center for Groundwater Research and Training housed at Flinders University in Adelaide, Australia. The center has been funded as a joint venture between the Australian Research Council and the National Water Commission since 2009, as part of a $105 million National Groundwater Action Plan. I work with an international team of postdocs, PhD students, and researchers working on various projects centered around surface water/groundwater interactions. So far, I have been working on modeling disconnected streams, will also be using isotopes and various tracers to measure infiltration in Western Australia in an area influenced by mining and cyclonic activity, and studying an ephemeral stream system in the center of the country. This has been already been a great opportunity for expanding my experience in hydrogeology and seeing remote parts of Australia.

So far, Adelaide has been a wonderful place to live (summer again!), with options to ride my bike through endless hills dotted with orchards and vineyards or along the coast, hang out on the beach, go wine tasting, enjoy the many festivals, or sip espresso at a café. Life is definitely not bad at all here- I highly recommend a visit!
By: Margaret Shanafiel (Ph.D, GPHS '10)
GPHS Alumni: John Rupp

Degree received and year of completion: Humboldt State University BS Environmental Resources Engineering 1999; UNR MS Hydrogeology 2001; State of Nevada Professional Engineer (Civil-Water Resources) 2009

What have been your work experiences post-graduation? 2001-2004 Project Hydrogeologist, Geomega, Boulder Colorado; 2005-Present Senior Hydrogeologist/Project Manager, Water Management Consultants/Schlumberger Water Services

Company that you currently work for: Schlumberger Water Services

What are your current responsibilities and/or project work?: I am living in Santiago Chile with my wife and two kids. My current job is to manage and direct hydrogeology projects for water resources clients in North and South America, with active projects in Canada, Nevada, Alaska, Peru, and Chile. Traveling in my job has taken me to some of the most incredible places in the world, from the Atacama desert to the Cook Inlet in Alaska. My current 3-year assignment to South America has been a great opportunity to learn Spanish, live in a different culture, and travel to places like Patagonia and Peru. Consulting also has its benefits in terms of meeting interesting clients for great conversation at great restaurants with good food, wine and beer-a nice benefit.

Schlumberger Water Services specializes in providing consulting services to industrial clients in mining, the power industry, and all type of water supply projects. Recent project experience has been focused on five major areas: 1) Basin- and local-scale groundwater investigations of potential water quantity and quality impacts for permitting purposes, usually environmental impact statements and assessments. This work has been a combination of hydrogeologic systems conceptualization and numerical groundwater modeling. 2) Pore pressure analysis, conceptualization, and numerical modeling for mine dewatering studies, either pre-feasibility, feasibility, or operational considerations. Generally this work is spreadsheet and water balance based, with some 2- or 3-D pore pressure modeling. 3) Water supply investigations for optimization/replacement of existing water-supply wellfields. This work is usually a combination of analytical pumping test and operational data with some sort of numerical flow model. This work typically includes some sort of water quality constraints and estimation of potential drawdown impacts, to comply with existing permits. 4) Model-based vadose zone simulations of rapid infiltration basins, heap leach pads, tailings impoundments, or waste rock dumps. This work is almost always model-based. 5) Groundwater engineering including well design, pipe line design, pump sizing, booster stations etc.

How do you feel the GPHS has prepared you for your current position? A great benefit of the GPHS program is learning how to think through complex hydrogeologic problems. Anybody can “learn” how to create or run a model or run a Theis analysis from a book or manual, but that doesn’t teach you how to think things through. To get the most out of the program listen to the voice of experience that GPHS professors provide. To be successful as a hydrogeologist you must thoroughly understand the basics and know how to apply them correctly. Things like water balances, understanding the concept of safe yield, the subtle nuances of a pumping test analysis. It’s the understanding on how to apply basic hydrogeologic principles that is often the most important key to success.

Do you have any advice for graduating students?: If you are going into consulting, learn how to write well, forget much of what you learned from reading journal articles. Clients generally prefer clear, simple, concise writing to the type of writing found in scientific journals. The product sold by consultants is communication of knowledge, in presentations, memos, reports and meetings. The better the product, the more successful you will be. A few good rules to remember:

1. Only introduce one thought per sentence. If you find yourself using the word “and”, cut the sentence in half.
2. Write in a way that a layperson can get the gist of what you are trying to say. Break down difficult concepts into list of basic parts that are easier to understand.
GPHS Alumna: Elizabeth Schwartz

Degree received and year of completion: MS Hydrogeology, 2003

What have been your work experiences post-graduation? After graduating, I became a Peace Corps volunteer in Panama and worked on rural water and sanitation projects. Upon returning to the states in 2005, I started my career in the environmental consulting industry. I worked at a small firm based in Pleasanton, California for about a year and a half and then moved to TRC, where I have worked for the past 3 ½ years.

Company that you currently work for: TRC

What are your current responsibilities and/or project work?: My current title is Project Hydrogeologist. I generally work as a technical advisor on numerous contaminated sites, including a superfund site in Phoenix Arizona, a closed landfill site in Antioch California, and a former aerospace manufacturing site in San Jose, California. I specialize in characterization, fate and transport, and remediation of soil and groundwater impacted with volatile organic compounds (primarily tetrachloroethylene and trichloroethene). I also manage a postal service facility site in Encino, California that is impacted with benzene and hydrocarbons. We are currently implementing in situ chemical oxidation to treat impacted groundwater in the vicinity of the post office.

How do you feel the GPHS has prepared you for your current position? I don’t think I could have chosen a better degree to prepare me for a career in the environmental consulting industry. Most of my colleagues have degrees in geology or environmental science and haven’t had training specific to groundwater or surface water processes. It is not very often that someone can say that they actually use what they learned in graduate school on a daily basis, but I can definitely say that. I also get to work on more technical projects, such as groundwater modeling, because of my background and experience at the GPHS.

Do you have any advice for graduating students?: First, congratulations! The GPHS is a challenging program and all graduates should be proud of their hard work. As far as careers are concerned, it appears that environmental consulting, especially in soil and groundwater remediation, has proven to be somewhat resistant to downturns in the economy. Most of the sites that I work on will not be remediated in decades, and if that isn’t job security, I don’t know what is! Also, I wish that I had gone for my professional geologist registration and certified Hydrogeologist registration much earlier on. The longer you wait to take the tests, the more difficult they are because you end up forgetting a lot of the information that you learned in college that you don’t use on a regular basis.
Recent Publications

All publications cited are authored or co-authored by faculty, students and/or staff of the Program of Hydrologic Sciences. Paper copies can be found at the Mathewson-IGT Knowledge center on campus, or digitally through the university’s online e-journal service.


Umek, J., Chandra, S., Rosen, M.R., Wittmann, M., and Orsak E., 2010, Importance of benthic production to fish populations in Lake Mead prior to the establishment of quagga mussels. Lake and Reservoir Management, 26, 293-305.