

Supporting Students of Science:
NWRI Success Stories

Fall 2004 – NWRI prides itself on its interest and support of students in science. From presenting awards to junior high and high school students at science fairs to holding Water Camp, a weeklong summer program for kids interested in science, NWRI has always incorporated the younger generation into its research agenda. After all, these students are the scientists of the future — supporting them can only ensure clean, safe sources of water in the years to come.

That is why NWRI is dedicated to supporting graduate students conducting research related to water science. Since 1991, NWRI has funded the work of over 30 graduate researchers, 12 of which directly received NWRI Fellowships.

Here is an update on the careers of three outstanding recipients of the NWRI Fellowship:

Joon Ha Kim, Ph.D.

Congratulations are in order for Joon Ha Kim, a native of Korea, who recently graduated from the University of California, Irvine (UCI), with a Ph.D. in Chemical and Biochemical Engineering in September 2003.

Joon received an NWRI Fellowship in 2001 for his research on characterizing the fate and transport of biological pollutants — specifically, fecal indicator bacteria — in coastal waters, as well as means to forecast coastal pollution.

Four studies that he worked on as a graduate researcher have already been published, and another three studies are currently being submitted to environmental journals. These studies range in topics from variations in surf-zone water quality to public mis-notification of water quality to the impacts of tides on coastal pollution.

Joon is now employed as a postdoctoral researcher in the Environmental Biotechnology Laboratory at UCI, where he is developing “now-casts” (a short-term forecast, generally about 6 hours or less) of both surf-zone and coastal wetland water quality. He hopes that these now-cast models will be “useful management tools” that can help “coastal managers make cost-effective and scientifically justifiable decisions” in determining when to close a beach to protect public health and in better managing coastal urban wetlands.

An avid golfer and racquetball player, Joon plans on staying in the U.S. “as long as research needs me.” He credits the NWRI Fellowship with helping him achieve success — and not just in science.

“It was an honor to become an NWRI Graduate Fellow,” said Joon. “The status of Fellow brought in good support, and that helped me in developing my ability and creativeness for research, as well as for life.”

Stephen Lyon, Ph.D.

Another UCI alumni, Stephen Lyon received an NWRI Fellowship in 1994 for his doctoral research on the microbial ecology of bacterial communities in chemically stressed soils. At that time, he was a graduate researcher in UCI’s Department of Environmental Analysis and Design. With help from the Fellowship, he completed his research and graduated in 2000.

Four years later, he is now a Senior Scientist at the Orange County Water District, where he developed and runs the Field Research Laboratory in Anaheim, California.

“My job,” said Stephen, “is to investigate a variety of approaches that improve the quantity and quality of water that is used to recharge the aquifer in Orange County.”

Some of these approaches include developing constructed wetlands for treating surface water prior to recharge, developing a limnological database on all the major water bodies in the 1,000-acre recharge system, and studying the various processes that influence percolation and clogging in the recharge basins.

Stephen’s work isn’t just limited to aquifers — he is also interested in “encouraging the next generation of environmental scientists.” Not only does he teach Environmental Chemistry in the Engineering Department at UCI, but he also works with the water division of the Southern California Science Olympiad, as well as the Orange County Science and Engineering Fair.

For Stephen, encouragement — especially in the form of a fellowship — is the key to success.

“My Ph.D. dissertation research was one of the main reasons why I was hired by the Orange County Water District,” he said. “At a time when my current funding had run out, the NWRI Fellowship provided the support needed to get me through a critical period in my research. I am greatly indebted to NWRI for its caring and generosity.”

Sharon Walker, Ph.D. Candidate

When Sharon Walker was an undergraduate in Environmental Engineering at the University of Southern California, her professor encouraged her to attend the Athalie Richardson Irvine Clarke Prize Award Ceremony and Lecture — which is where she first learned about NWRI and its graduate Fellowship.

Several years later, after she was accepted as a doctoral student in the Environmental Engineering Program in the Department of Chemical Engineering at Yale University,

Sharon immediately submitted a proposal to NWRI and was awarded a Fellowship for her doctoral research on bacteria in groundwater environments.

Specifically, she is looking at how the surface characteristics of bacteria, the chemical solution of groundwater, and the geology of the subsurface all affect the transport of bacteria in groundwater during bioremediation, the process of using microorganisms, like bacteria, to break down or immobilize contaminants.

The Fellowship has been a boon to her research. “Unlike other graduate students,” she said, “I’ve had the freedom to decide which symposiums to attend, and I’ve been lucky enough to meet so many experts in my field. Not only that, but the Fellowship funding has allowed me to develop my research without worrying about the costs, which is a luxury not many students have.”

For instance, the Fellowship money helped her to purchase a Zeiss inverted fluorescence microscope, which Sharon says is the “Rolls Royce of microscopes.” It is the primary piece of equipment for her research and allows her to see bacteria in an aquatic environment.

Sharon plans on graduating with her Ph.D. in summer 2004. In the meantime, she is working on her dissertation, which will be a compilation of all her published papers. So far, she has one published piece, two in the process of publication, and another that she has just started writing.

She also squeezes in time as a mentor to women undergraduates as a part of the “Women in Science” program at Yale University. As one of the few female engineers at Yale, Sharon has spent the last few years introducing other young women to the laboratories and graduate research in the environmental engineering program. “It’s a satisfying outlet,” she said. “I’m able to give these undergrads a different perspective on engineering.”

Ultimately, her goal is to become a professor at a research university. At present, she is applying for postdoctoral positions in the United States and abroad. NWRI wishes her the best of luck!