

Regional

Retiring professor leaves environmental legacy

While the environmental movement has been around for many years, it has only recently captured the public's attention with stories about global warming, natural disasters and species going extinct. With media attention comes public awareness. But among the scientific community, concerns over the environment are nothing new. One scholar who has been working for decades on this issue is Richard Brugam, a professor of biology at Southern Illinois University Edwardsville. When asked why he decided to become an environmental biologist back in the 1970s, he said it was the result of a question asked of him by an acquaintance.

"The question was, 'What could you do for the world doing ecology and organismal biology?' My conclusion was environmental biology," he said. "Not making the world better for trout, which is what a lot of people thought it would be, but making the world better for people."

A native of Philadelphia, Penn., Brugam obtained his bachelor's degree in biology from Lehigh University in Pennsylvania, and his master's and doctoral degrees, also in biology, from Yale. He joined the faculty of SIUE in 1978.

He said that he decided to come to SIUE for the opportunity to do both research and teach undergraduates. Since then, he said, he has seen a lot of changes.

"This university is now even more emphasizing that teacher-scholar model that I was attracted to," he said. "Also, I don't know whether this is good or bad, but this university is a whole lot more professional than it was when I arrived. It worked a lot then on personal relationships and feelings, but now it is more professional by far." The university is not all that has changed for Brugam. During his 40 years as a biologist he has seen a lot of changes regarding the pollution of waters in North America.

"In my living ecologically class, I make a big argument to my students that the environmental legislation of the 70s is making life a lot better for us now," he said. "But



Dr. Richard Brugam at his lab.

Courtesy of Michael Nathe

you have other things on the horizon like climate change, persistent organic pollutants, those sorts of things that make it a constant job of getting in front of what science is doing and determining how it is going to impact the environment." He said that dealing with the effects of climate change would be more difficult than dealing with the effects of pollution.

"The central problem of climate change is it turns on CO2 emissions and the whole world economy depends on burning stuff to make energy. The thing I present in class always is that people who are going to get hit by that are not the wealthy folks in the world," he said. "It's the poor folks at the bottom of the food chain."

So how do we solve this problem?

"As I tell my students, it is a difficult problem because of the way the economy is tied up with the burning of fossil fuels," Brugam said. "So what do you do that doesn't hurt the guy at the bottom of the economic heap?"

Some say that it is too late, that the harm has already been done. "Maybe. I don't know for sure," Brugam said. "What I have told my students always is whether there are climate science deniers out there or not, you will be the people who know the result. We are in a giant biogeochemical experiment. While it may not be clear now, it will be clear to you and especially your grandchildren."

Among Brugam's earliest work was studying lead pollution in waters. Although a lot of that pollution has been eliminated by the use of unleaded gasoline, the problem persists in sediments. "We have found it all around here because we were a center of lead smelting," he explained. "There was a fellow named Clair Patterson who said, 'Some day we will wake up and realize we have contaminated all of our major cities with a poison.' And that's what it is."

Another area he studied early in his career is the acidification of waters. So has anything improved?

"In the United States, I hesitate to say

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that it is solved," he said. "You go back to those 1970s environmental laws and one triumph was to stop acid rain essentially. It's an expensive, but a real fix to clean up coal. It has been a problem for Illinois though. You can either clean up the sulfur-rich coal with post combustion techniques, or you buy low-sulfur coal. And that has been kind of a disaster for Illinois, because it is the Saudi Arabia of coal. But it is also the Saudi Arabia of high-sulfur coal."

Among of the aquatic organisms he has studied to figure out environmental impacts are fossil diatoms, microscopic creatures with an external skeleton. "All of the things we have talked about have a historical component," he said. "The changes are from long-term impact of human activity on the environment. Lakes accumulate sediment, and in that sediment are fossil diatoms. And diatoms are very sensitive to water quality changes. You can go down in the sediment core and read the fossils of diatoms as though it were a history of the location."

Brugam is now retiring, but that does not mean that he will slow down. "I have to write," he said. "I have a lot of research, and the students here have put in a lot of work, and the world has to know about what we did. I have been publishing along, but not at the rate I should have been. It is not difficult nowadays with modern technology, with a good computer and Internet, for global publishing houses to publish your stuff from your bedroom if you want."

Aldemaro Romero Jr. is the Dean of the College of Arts and Sciences at Southern Illinois University Edwardsville. His show, "Segue," can be heard every Sunday morning at 9 a.m. on WSIE, 88.7 FM. He can be reached at College_