by Laura Drouillard

STUDENTS

Inside Chemical Valley

In one of Ontario's most polluted regions, **Lisa Letourneau** studies the effects of neurotoxins on local residents

Growing up in Algonac, Michigan, LSA senior Lisa Letourneau lived about 25 miles away from the smoke stacks and refineries that surrounded the Sarnia 45 Indian Reserve. She heard of the health concerns due to the heavy air pollution. And she was especially curious about the Aamjiwnaang First Nation, the reservation's community of approximately 850 Chippewa (Ojibwe) individuals, because Letourneau herself is Native American; her father's family belongs to the Wyandot of Anderdon Nation.

Fast forward to spring 2010, when Letourneau learned about a research project led by Nil Basu, assistant professor of environmental health sciences at U-M's School of Public Health. Funded by grants from the Great Lakes Commission and U-M's Clinical and Translational

PHOTO AP Photo/Carlos Osorio

Science Awards program, the research investigates how complex pollutants impact the health of the members of the Aamjiwnaang First Nation. Specifically, they are looking at the distribution of arsenic, lead, manganese, and mercury — known neurotoxins —and how they may affect children's cognitive development.

Letourneau, who is majoring in sociology and minoring in Native American studies, says that the project immediately "sounded like a perfect fit." During the school year, she conducted research for credit as part of LSA's Undergraduate Research Opportunity Program (UROP). She has even integrated her interest in nutrition by analyzing food consumption on the reserve.

"It gives me an opportunity to work with and help people who are a part of a culture that I'm deeply interested in because of my own background," she says.

The study is being conducted in response to a call for action from concerned individuals and communities. Previous studies have suggested that the reservation's exposure to pollutants contributes to skewed birth rates (two girls born for every boy) and higher rates of death, miscarriage, and disease. Data from Environment Canada's National Pollutant Release Inventory suggests that the Sarnia Reserve is ground zero for Ontario's heaviest air pollution — with nearly 290 million pounds of pollutants being released from 46 plants surrounding the reservation in 2005.

In total, there are 62 industrial facilities within 15 miles of the reservation — an area commonly known as "Chemical Valley." The researchers aim to provide and empower the Aamjiwnaang First Nation with data and evidence regarding how the pollution affects the health of those living on the reserve.

Each month, Letourneau and Diana Cryderman, a Ph.D. candidate in the Department of Environmental Health Sciences at the School of Public Health, visit the Sarnia Reserve. They take seasonal samplings from nearby soil and streams, as well as parks and schools and assess metal levels across the border in Port Huron, Michigan, to compare measures.

"I don't remember actually driving through [Chemical Valley] until my first trip to Aamjiwnaang. I was surprised at how immediately the pollution affects you. Visually, there are stacks and flames everywhere. The smell is overpowering, and I often develop nagging headaches when we spend a lot of time outdoors there — whether this has to do directly with industry or not, I am not sure," says Letourneau.

The researchers also meet with the families participating in the study. These meetings often involve developmental testing and collecting blood and hair samples. Letourneau says they've become "regulars" at the reservation, visiting at least once each month. She has found that taking four semesters of Ojibwe, the native language of the Aamjiwnaang First Nation, has aided these interactions.

"Although I only know some Anishinaabemowin (the word for the Ojibwe language, in Ojibwe), it has helped me establish a connection with study participants. Only some have noticed that I speak a little bit of it, but it does allow for a more personal connection," says Letourneau.

As part of UROP, Letourneau attends bi-weekly discussion groups to share stories and lessons learned.

"[This] has given me fieldwork experience that I may not have been able to have until I was a graduate student," says Letourneau. "It has really given me an idea of what I'd like to do in the future."

Those plans include graduation in 2012 and a master's degree in public health, focusing on a program in nutrition.

"I want to find a way to combine my interest in nutrition with my interest in Native American culture," she says. "That would be my ideal job." ■

Lisa Letourneau (right) takes soil samples at a park in Ontario's Sarnia Reserve. Scores of factories in nearby "Chemical Valley" may be harming human health. "[Chemical Valley] is literally across the street from houses and community buildings," she says.

PHOTOS Lisa Letourneau