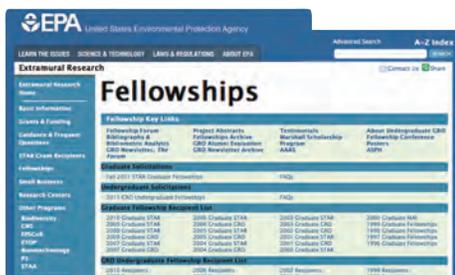


# Students Gain Hands-on Experience with EPA

As recipients of the Environmental Protection Agency's 2010 Greater Research Opportunity fellowships, environmental studies majors Emily Thorpe and Jonné Woodard had the rare opportunity to study alongside some of the most knowledgeable environmental scientists in the United States. Both students completed summer internships at EPA research facilities, Thorpe in Narragansett, RI, and Woodard in Duluth, MN. A third SU student, sophomore Jessie Johnson, also an environmental studies major, won the 2011 fellowship and will complete her internship next summer.



Emily Thorpe



Jonné Woodard

Thorpe became interested in environmentalism while growing up near the Chesapeake Bay: "I originally became interested in wetlands when I volunteered at Jug Bay Wetlands Sanctuary during high school. I started volunteering there as part of my senior research practicum project and was looking at the effects of soil pH and moisture on salamander presence."

As part of her fellowship, Thorpe spent most of the summer at the EPA's Atlantic Ecology Division (AED) in Narragansett, RI, where she worked with a team of student and faculty researchers to investigate the impacts of climate change and sea-level rise on coastal wetland systems. One of her major research projects was to study the impact of factors such as drought, rain and storms on wetland plant life.

Thorpe also participated in a field study involving the installation of a planting-unit in a coastal salt marsh to determine the effects of sea-level rise on decomposition rates and other plant processes. Additionally, she assisted with an on-going seining project to count and measure fish, shrimp and crabs. "This study, which examined the changes in aquatic populations over time, was a replication of a study that was first conducted in the 1960s, and [the research team] is already seeing noticeable differences," explained Thorpe.

Thorpe also participated in a bird population surveying project, as well as a soil and root analysis of samples collected from Plum Island, a study that is part of a Long Term Ecological Research (LTER) project.

As for the future, Thorpe plans to spend some time working in the field of environmental studies before graduate school, where she plans to pursue her interests in wetlands protection, sea level rise and the impact of development on waterways. Ultimately, Thorpe plans to earn her Ph.D. and become a college professor. "I really believe that education is essential to preserving and protecting the environment," said Thorpe. "Some of the most interesting college professors are those who have had lots of experiences before they become professors, because then they can share interesting stories and have more real-world experience to offer to students. So with that said, I hope to do lots of different things before becoming a professor."

Woodard was inspired by elementary school field trips to animal research centers. Her summer research internship at the Mid-Continent Ecology Division Laboratory in Duluth, MN, was primarily focused on pharmaceuticals in the environment, particularly aquatic ecosystems. Woodard's research centered on the potential that pharmaceuticals cause endocrine disruption in non-target species, such as fish.

"My research is examining the endocrine-disrupting effects of Spironolactone, a drug used to treat hypertension, on aquatic vertebrate species and invertebrate species," explained Woodard. "Spironolactone has known estrogenic effects in humans, that is, it causes demasculinization. However in fish, research suggests it has androgenic effects, causing defeminization."

Woodard is also helping to build a database to prioritize pharmaceuticals in the environment. The database is established on the premise that if researchers know the molecular target (organ, gene, protein) that a pharmaceutical acts on, they can analyze that gene/protein across species to predict adverse effects on other non-target species.

Woodard said that her most rewarding experience has been "working among well-known biologists in the field of eco-toxicology, who are humble enough to take time out from their busy schedule to explain, show and mentor me." Woodard found the experience to be very challenging, but added that, "with every challenge comes the greater opportunity to grow."

Woodard's research interests include the contaminating effects of household products such as cleaning supplies on people, animals and the environment. She hopes her experience with the EPA will help her decide what environmental career path to choose. "Working in the lab has been an enjoyable experience ... I would, however, like to incorporate a public outreach component to the lab experience," said Woodard.

As for the future, Woodard is planning a career in environmental science, but she is keeping her options open. She has her eye on Johns Hopkins University, where she wants to pursue a Master of Public Health. She is also considering post-baccalaureate programs with the National Institutes of Health (NIH) as well as regional toxicology and/or environmental health programs.

All three awardees credited their classes and professors at SU with helping to fuel their passion for the environment and affirming their dedication to working in this field. Only 30 of these awards are given each year, worth \$42,700 each. The fellowships provide students with college funding for their junior and senior years, as well as paid internships at EPA facilities during the summer between those years.