

JACQUELINE A. AITKENHEAD-PETERSON

Associate Professor of Urban Nutrient and Water Management
Dept. of Soil and Crop Sciences, Texas A&M University, College Station, Texas

Education/Training

2000 Ph.D Natural Resources, University of New Hampshire
1996 M.Sc. Soil Science, University of Aberdeen, Scotland
1995 B.Sc. (Hons 2:1) Environmental Science, University of Stirling, Scotland

Positions and Employment

Associate Professor, Soil and Crop Sciences, Texas A&M University 2013 - date
Adjunct Professor, Dept Anthropology, Texas State University, San Marcos, TX 2013-2016
Assistant Professor, Soil and Crop Sciences, Texas A&M University 2006-2013
Research Assistant Professor, University of New Hampshire 2002-2007
Postdoctoral Research Associate, Natural Resources, University of New Hampshire 2000-2002
Research Associate, Natural Resources, University of New Hampshire 1997-2000

Program Overview

My primary research focuses on carbon and nutrient dynamics in urban and rural soil, runoff and surface waters. I am a PI on the Scotts Company/Texas A & M (24 plot) runoff research facility where I have examined runoff carbon and nutrient concentrations and exports from warm-season turfgrass under fertilizer and wetting agent applications, deficit irrigation treatments and more recently, runoff volume and chemistry from alternative urban landscapes. The investigation of carbon and nutrients released from decomposing mammals (mainly humans) with a view to estimating post-mortem interval is a relatively new field; decomposing mammals introduce another source of carbon and nutrients into the soil environment which is under researched. To expand soil science in forensics, soil has been used in training of human remains detection dogs in terms of odor and texture. An expansion of this forensic research is the development of use of UV-Vis-NIR spectroscopy with statistical models for trace soil evidence for a) determining percent similarity of soils and b) postmortem interval prediction. More recent work has investigated the chemistry of cadaver decomposition islands under a mass mortality event (MME) scenario in Mississippi. I am currently responsible for teaching (or co-teaching) Watersheds and Water Quality Management (SCSC 458/658), Soil, Plant Water Relations (SCSC 309) each Spring. My Fall classes include Forensic Science (SCSC/FIVS 401) and the team taught graduate level course in Analysis of Environmental Systems (SCSC 618).

Significant 5 Year Accomplishments

- Produced a model for estimating postmortem interval from the soil of cadaver decomposition islands
- Demonstrated that exclusion of Diptera on decomposing remains increases the nutrient addition to soil in the cadaver decomposition island
- Conducted research on urban/suburban ponds and lakes to test the hypothesis that these surface waters do not meet standards for recreation.
- Conducted research on alternative urban landscapes on runoff water volumes and nutrient exports.
- Demonstrated that high sodium in irrigation water likely causes the release of DOC and DON in runoff and water extracted soils.

I have authored/co-authored 55 peer reviewed publications , 5 proceedings papers 1 edited book, 5 book chapters and >100 abstracts . Research from my program has been cited 2968 times (Google Scholar). I have Supervised 6 PhD students (5 of whom are now assistant professors or adjunct faculty at various institutions), 17 MS students and 2 MWM students. In addition I have supervised > 30 undergraduate research projects.

Publications: 12 most recent publications *Corresponding author, italics = student

1. ***Aitkenhead-Peterson JA., Fancher JP., Alexander MB.,** Hamilton M., Bytheway JA., Wescott DJ. (2021). Predicting postmortem interval for human cadavers in a sub-tropical climate using UV-Vis-near infrared spectroscopy. J. Forensic Sci.
2. Heo CC., Tomberlin JK., ***Aitkenhead-Peterson JA.** (2021). Soil chemistry dynamics of *Sus scrofa* carcasses with and without delayed Diptera colonization J. Forensic Sci.
3. ***Fontanier CH., Aitkenhead-Peterson JA.,** Wherley BG., *Ojeda N.,* White RH., Thomas JC., Dwyer P. (2021). Nitrogen forms in runoff export from St. Augustinegrass. Agron. J.
4. ***Fontanier CH., Aitkenhead-Peterson JA.,** Wherley B., White RH., Thomas JC., (2020). Effective rainfall estimates for St. Augustinegrass lawns under varying irrigation programs. Agron. J.
5. *Chang B.,* ***Wherley BG., Aitkenhead-Peterson JA.,** West J. (2019). Irrigation salinity effects on Tifway Bermudagrass growth and Nitrogen uptake. Crop Sci. doi: 10.2135/cropsci2019.01.0065.
6. ***Gregory L.,** Harmel D., Karthikeyan R., Wagner K., Gentry TJ., **Aitkenhead-Peterson JA.** (2019). Elucidating the effects of land cover and useage on background *E. coli* sources in edge-of-field runoff. J. Environ. Qual. doi: 10.2134/jeq2019.02.0051
7. ***Aitkenhead-Peterson JA., Fontanier CH.,** Thomas JC., Wherley BG., McInnes KJ., White RH., (2018). Effect of sodic irrigation water on organic carbon and nitrogen concentration, fluxes and exports from newly installed St. Augustine grass sod in south-central Texas. Invited J. Horticulture DOI: 10.4172/2376-0354.1000235
8. ***Aminiyan MM., Aitkenhead-Peterson JA.,** Aminiyan FM., (2018). Fifteen-year evaluation of water quality index (WQI), annual changes and hydrochemical characteristics of surface water for drinking and agricultural purposes: a case study of the Karoon River, Iran. Env. Geochemistry and Health DOI: 10.1007/s10653-018-0135-7
9. ***Basatnia N., Hossein SA., Rodrigo-Comino J., Khaledian Y., Brevik EC., Aitkenhead-Peterson JA.,** Natesan U. (2018). Assessment of temporal and spatial water quality in international Gomishan Lagoon, Iran, using multivariate analysis. Environ. Monit. Assess. 190: 314. <https://doi.org/10.1007/s10661-018-6679-2>.
10. ***Berube M., Jewell K., Knappett P S., Shuar P., Datta S., Hossain A., Lipsi M., Hossain S., Hossain A., Dimova N., Aitkenhead-Peterson J A.,** and Ahmed A M. (2018).The fate of Arsenic in groundwater discharged to the Meghna River, Bangladesh. Environ Chem. <https://doi.org/10.1071/EN17104>.
11. ***Gregory LF., Karthikeyan R., Aitkenhead-Peterson JA.,** Gentry TJ., Wagner KL., Harmel DR. (2017). Nutrient Loading Impacts on Culturable *E. coli* and other Heterotrophic Bacteria Fate in Simulated Stream Mesocosms. Water Research, 126: 442-449.
12. ***Fancher JP., Aitkenhead-Peterson JA.,** *Farris T.,* Mix K., Schwab AP., Wescott D., Hamilton M. (2017). An evaluation of soil chemistry in human cadaver decomposition islands: Potential for estimating postmortem interval (PMI). Forensic Science International, 279: 130-139

Awards and Honors

- 2018 Elected Associate Member of the American Academy of Forensic Science
- 2017 Departmental Teaching Award
- 2015 Dean's Award for Excellence in Diversity, College of Agriculture and Life Sciences, Texas A&M University.

Professional Experience

- Member of American Geophysical Union (since 1998)
- Member of STAFS Board SHSU for proposal reviews and selection