Scott Campbell Worland **Curriculum Vitae**

US Geological Survey – Hydrologist, SCEP

Cell: 423-718-5581
scworland@usgs.gov

"The mind that is not baffled is not employed."
-Wendell Berry

EDUCATION:

Ph.D. Vanderbilt University, Environmental Engineering (expected, May, 2017)

M.S. Vanderbilt University, Earth and Environmental Sciences (Aug, 2014)

B.S. Georgia College, Environmental Sciences (May, 2012, Overall GPA- 4.0)

RESEARCH INTEREST:

Hydrology: Transport processes, translational hydrology, stochastic hydrology
Modelling: Numerical modelling of hydrologic processes
Water quality: Biogeochemical processes, freshwater diatoms

ACADEMIC EXPERIENCE:

Research Assistant (Ph.D.): (2014-present) USGS Career Intern, Vanderbilt University – **Water Conservation in American Cities**: Analyzing the complex interactions of political, demographic, economic, hydrologic, and climatological factors in that affect decisions that either advance or retard the development of water conservation policies. (Advisor: George Hornberger, VIEE)

Research Assistant (M.S.): (2012-2014) Vanderbilt University, ONR funded– **Characterizing the Hydrogeology of a Polder in Southwest Bangladesh**: Exploring origin, transport and the fate of saline groundwater beneath a reclaimed mangrove forest currently used for rice production and shrimp farming. (Advisor: George Hornberger, VIEE)

Teaching Assistant (M.S.): Vanderbilt University: Science, Risk and Policy (Spring 2013), Dynamic Earth (Spring 2013), Earth Systems through Time (Fall 2012)

Undergraduate research: (2011-2012) GCSU, **Exploring the Interface between Freshwater Hydrology and Algal Taxa on Sapelo Island, GA** (Advisors: Dr K. Manoylov, Dr. S. Mutiti)

Other Current research: (2013-present)
-Exploring hierarchal relationships between vegetation drought response and regional hydrology
-Exploring the biogeochemical controls on acid rock drainage in road cuts
-Generating deployable MATLAB applications that assists in statistical analysis
-Exploring effective discharge characteristics of mixed alluvial bedrock streams in TN

PUBLICATIONS:

Worland, S.C, R. Bennartz, J. Murphy, T. Merrick, M.W. Bradley, G.M. Hornberger. "Exploring the Modulating Effect of Land Cover and Regional Hydrology on NDVI Anomalies During a Drought in TN." *Geophysical Research Letters* (In prep, 2014).

Worland, Scott C., George M. Hornberger. "Source, Transport, and Evolution of Saline Groundwater in a Shallow Holocene Aquifer on the Tidal Deltaplain of Southwest Bangladesh." *Water Resources Research* (Submitted, August 2014).

Worland, S. C. "Source, Transport, and Evolution of Saline Groundwater in a Shallow Holocene Aquifer on the Tidal Deltaplain of Southwest Bangladesh." Master's Thesis, Vanderbilt University (2014).

PROFFESIONAL PRESENTATIONS:

Worland, S.C, R. Bennartz, J. Murphy, T. Merrick, M.W. Bradley, G.M. Hornberger (2014-submitted). *Vegetation Response and Streamflow Anomalies: Exploring the Modulating Effect of Watershed Storage as Estimated by a Regionalized Baseflow Index.* American Geophysical Union, Fall Meeting

Worland, S.C. (Nov 2014). Water Conservation in American Cities. Water Resources Technical Advisory Committee, TN Department of Conservation, invited speaker.

Worland, S.C, Hornberger, G (2013). *Characterizing the Occurrence and Transport of Brackish Groundwater in Southwest Bangladesh.* American Geophysical Union, Fall Meeting

Worland, S.C, Hornberger, G (2013*). Characterizing the Hydrostratigraphic Controls on Groundwater Discharge into the Harpeth River Using Thermal Signatures, numerical modelling and Electromagnetic Induction*. 2013 Tennessee Water Resources Symposium. Montgomery Bell State Park, TN.

Ayers, John C. G. George, L Benneyworth , **S.C. Worland**, G.M. Hornberger, S.L. Goodbred. (2013) *Sources of Salinity in Surface and Ground Water in a Polder in Southwestern Bangladesh.* Geological Society of America Annual Meeting.

Worland, S.C, Manoylov, K, Mutiti, S. (2012). *Sapelo Island Freshwater Algae: A Taxonomic Survey and Evaluation of pristine habitats*. Georgia College and State University (GCSU)/Council of Public Liberal Arts Colleges (COPLAC) Conference on Undergraduate Research (CUR), Milledgeville, GA

HONORS/ ORGANIZATIONS:

Teaching assistantship, Vanderbilt University; Earth and Environmental Science
Fellow, Vanderbilt's Institute for Energy and the Environment
GCSU Alumni Scholarship, four semesters (2010-2012)
GCSU Foundation Scholarship, two semesters (2011-2012)
Coca-Cola scholarship, two semesters (2011-2012)
Tri-Beta Member
Alpha Lambda Delta member
Phi Kappa Phi member

Presidents list (4.0 GPA) 8 semesters
Presented undergraduate research at GCSU research conference
Abstract selected for AGU conference (2013)
Abstract selected for TNAWRA symposium (2013)
Selected to present at COPLAC conference (2012)
Selected to publish in Metamorphosis (2012)
Eagle Scout (2005)
Geological Society of America member
American Geophysical Union member

WORK EXPERIENCE:

USGS volunteer for science: Nashville, TN (March -July 2013)
Research assistant: Vanderbilt University (May 2013-present)
Teaching assistant: Vanderbilt University (2012-May 2013)
Grounds: Hillwood Country Club, Nashville, TN (2012-2013)
Farm contractor: Chickamauga/Milledgeville, GA (2004-2012)
Life Guard: Chickamauga, GA (2004-2006)

COMMUNITY SERVICE:

Volunteer at Preston Taylor Ministries (Nashville TN, Mondays, 2013)
Volunteer at soup kitchen (Nashville TN, Tuesdays, 2012-January 2013)
Volunteer at soup kitchen (Milledgeville GA, Tuesdays, 2011)
Camp Counselor (Hidden Hollow Day Camp, Chickamauga GA, 2002-2012)
Volunteer at the Salvation Army during Thanksgiving/ Christmas (2000-2011)
Service work in Uganda, Kenya and the Philippines (2007-2008)
Big brother in *Big Brothers Big Sisters* program (2005-2007)

SKILLS: MATLAB (general programming, but can also do spatial processing as data cube arrays), R, LATEX word processor, ArcMap GIS, Statistics, Ground Water Modelling

TOOLS: (1) MATLAB tool that completes gaps in suspended sediment concentration data, (2) MATLAB tool deployed as a Windows standalone application which assist in time series analysis of suspended sediment data

REFERENCES:

Dr. George Hornberger (George.m.hornberger@vanderbilt.edu)
Director of Vanderbilt Institute for Energy and Environment
Professor of Civil and Environmental Engineering
Chair of Earth and Environmental Sciences
Vanderbilt University
Office number: (615) 343-1144

Dr. David Furbish (David.j.furbish@vanderbilt.edu)
Professor of Earth and Environmental Sciences
Department of Earth and Environmental Sciences
Vanderbilt University
Office number: (615) 322-2137

Dr. Kalina Manoylov (Kalina.manoylov@gcsu.edu)
Assistant Professor of Biology
Department of Biological and Environmental Sciences
Georgia College and State University
Office number: (478) 445-2439

Dr. Samuel Mutiti (samuel.mutiti@gcsu.edu)
Assistant Professor of Biology
Department of Biological and Environmental Sciences
Georgia College and State University
Office number: (478) 445-5858