PAUL JULIAN, PHD

EDUCATION

2018 — **University of Florida**
Ph.D. in Soil and Water Science — Gainesville, Florida

Dissertation: Biogeochemical controls of water column productivity and nutrient cycling in semitropical wetlands – A case study from the Everglades Stormwater Treatment Areas.

2010 — **Florida Gulf Coast University**
M.Sc in Environmental Science — Fort Myers, Florida

Thesis: Habitat Selection by the Florida Panther in Response to Melaleuca Removal within Big Cypress National Preserve.

2005 — **Benedictine College**
B.Sc. in Biochemistry — Atchison, Kansas

Senior Project: The Quantitative Study of Mercury in Atchison Area Water Sources.

PROFESSIONAL EXPERIENCE

Present | Aug. 2011 — **Environmental Consultant, Everglades Technical Lead**
Florida Department of Environmental Protection — Fort Myers/Tallahassee, Florida

- Participate in multi-agency regulatory and science review team.
- Perform water quality compliance calculations.
- Conduct data mining and analysis of environmental data.
- Synthesize and author technical reports.
- Technical review of submittals consistent with the Clean Water Act.
- Support federal and state restoration planning efforts.

Aug. 2016 | Aug. 2018 — **Graduate Research Assistant**
University of Florida — Gainesville/Fort Pierce, Florida

- Analysis of water quality and soil nutrient data.
- Aid in writing quarterly and annual reports.
- Participate in project workshops and present project related finds at national and international conferences.

Jan. 2015 | May 2015 — **Adjunct Faculty**
Florida Gulf coast University — Fort Myers, Florida

- Taught weekly lectures.
- Graded exams and assignments
- Instructor for ISC 3120: Scientific Process

CONTACT INFO

Lehigh Acres, Florida, USA
pauljulianphd@gmail.com
SwampThingEcology.org
github.com/SwampThingPaul
407-729-8192

SKILLS

Experienced in statistical analysis of environmental data including chemical, hydrologic and ecologcial data.

Computing Skills

Expertise: ArcGIS, R/RStudio, Markdown, Git/Github, LaTex, MS Access

Familiarity: QGIS, Python, HTML, Inkscape

Last updated on 10 June 2019.

Jan. 2010 | Aug. 2011

Biological Scientist III
Florida Fish and Wildlife Reserch Institute — Saint Petersburg, Florida

- Operation of boats in marine and estuarine environments.
- Collect optical water quality samples and associated data.
- Collect seagrass, macroalge, and sediment for analysis according to US Environmental Protection Agency (USEPA) protocols and/or National Oceanic and Atmospheric Administration (NOAA) Natural Resource Damage Assessment (NRDA) protocols.
- Geostatistical analysis, photo-interpretation, spatial analysis, and writing reports/summaries

Feb. 2008 | Dec. 2009

Lab Manager
University of Florida — Immokalee, Florida

- Analysis of plant samples for agricultural pathogens including Huanglongbing (HLB; Citrus Greening).
- Analyses include advanced molecular biological techniques including DNA/RNA isolations, RFPL, PCR, RT-PCR and qPCR.
- Field sampling, data entry and report writing.
- Maintain everyday laboratory operation.

Dec. 2007 | Dec. 2008

Graduate Research Assitant
Florida Gulf Coast University — Fort Myers, Florida

- Analysis of existing water quality data to aid in the selection of water quality targets for southwest Florida.

Mar. 2007 | Feb. 2008

Technical Director/Chemist
HBEL Inc. (Formerly Harbor Branch Environmental Lab Inc.)
Lehigh Acres/Fort Myers, Florida

- Analyze drinking water, waste water and environmental samples according approved protocols.
- Writing technical reports and grants, data entry and field sampling.
- Maintain everyday laboratory operation.
- Interact with current and potential clients.

Dec. 2005 | Mar. 2007

Staff Chemist II
Mote Marine Labortory — Sarasota, Florida

- Operation of boats in marine and estuarine environments.
- Collect and analyse sediment and water samples from marine, estuarine and freshwater environments.
- Maintain a variety of instruments, manage field operations, and data entry.

LICENSES & CERTIFICATIONS

2018 — **Professional Wetland Scientist**
Society of Wetland Scientists
PWS # 2905

2013 — **Florida Stormwater Management Inspector**
Florida Department of Environmental Protection
Credential ID 28265

2009 — **PADI Open Water Diver**
Professional Association of Diving Instructors

HONORS & AWARDS

2016 — **Sam Polston Award**
University of Florida

2015 **Wetland Biogeochemistry Laboratory Graduate Fellowship**
University of Florida

2015 & 2016 **Institute of Food and Agricultural Sciences Travel Awards**
University of Florida

2005 **Chemistry Department Service Award**
Benedictine College

2004 & 2005 **Discovery Scholar**
Benedictine College

2001 **Athletic Scholarship**
Benedictine College

SYNERGISTIC ACTIVITIES

EXTRACURRICULAR

Present | 2016 **Florida Coastal Everglades Long Term Ecological Research.**

2019 **Woodstoich 4**
Silicon Stoichiometry Working Group

2017-2018 **Long Term Ecological Research.**
All Scientist Meeting Program Committee.

2017 | 2018 **Florida Coastal Everglades Long Term Ecological Research**
Student Organization, Off-Campus Representative.

2017 & 2015 **Greater Everglades Ecosystem Restoration Conference, Mercury and Sulfur Special Session co-organizer**

PEER AND TECHNICAL REVIEW

Peer Review

- Wetlands
- Journal of Agriculture
- Ecotoxicology
- Lake and Reservoir Management
- Environmental Management
- Ecological Engineering
- Science of the Environment
- Ecology and Evolution
- and many more

Technical Review

- South Florida Environmental Report
- Everglades Technical Oversight Committee
- Aquifer Storage and Recover Pilot Project Technical Data Review

WORKING GROUPS AND SUBTEAMS

Western Everglades Restoration Planning Project

- **Lake Okeechobee Watershed Restoration Planning Project**
- **Loxahatchee River Restoration Planning Project**
  Water Quality Subteam
- **Everglades Combined Operation Plan**
  Water Quality and Adaptive Management Subteams
- **Florida Coastal Everglades Long Term Ecological Research**
  Biogeochemistry Working Group

SCIENCE COMMUNICATION

Aug. 2018
- **Biotweeps Curator (Archive)**

May 2019
- **Co-organizer Society of Freshwater Science Twitter poster session**
  #2019SFSPostUp
- **Content contributor to "#MacrophyteMonday" and "#WetlandWednesday".**
  Twitter
- **Blog content (Topics: ecology, biogeochemistry, statistics, etc.)**
  https://swampthingecology.org/blog/

INFORMATICS AND PROGRAMMING

2019
- **Creator and maintainer of the R package AnalystHelper**
  AnalystHelper (on GitHub)

PUBLICATIONS

IN PREPARATION

- **Book Review: Spatial Ecology and Conservation Modeling, Applications with R, R. Fletcher and M. Fortin. Springer, 2019.**
  Austral Ecology
  Julian, P.
- **A tale of two storms: effects of sea level rise and pre-existing conditions on biogeochemical response to tropical storms.**
  Frontiers in Marine Science Marine Biogeochemistry.
  Julian, P., et al.
- **Nutrient homeostasis and mechanisms related to nutrient retention by wetland macrophytes in a subtropical wetland.**
  Aquatic Processes
  Julian, P., et al.

A complete list of publications can be found on my webpage (link).

Translating stream spiraling concepts to wetland nutrient uptake and transport mechanisms in a subtropical treatment wetland.
Environmental Monitoring and Assessment.
Julian, P., S. Gerber and A.J. Reisinger.

Reduced soil nutrient enrichment and Typha domingensis expansion due to restoration efforts. A temporal analysis of Taylor Slough in Everglades National Park.
Journal of Environmental Management
August, K.A., L.T. Simpson, **P. Julian** and T.Z Osborne.

PEER-REVIEWED (LAST FIVE-YEARS)

2019

Evaluation of nutrient stoichiometric relationships amongst ecosystem compartments of a subtropical treatment wetland. Do we have "Redfield Wetlands"?
Ecological Processes. *(In Press)*
Julian, P., et al.

2018

Balancing Wetland Restoration Benefits to People and Nature.
The Solutions Journal. 9(3) Link
Marazzi, L., M. Finlayson, P.A. Gell, **P. Julian**, J.S. Kominoski and E.E. Gaiser.

From lake to estuary, the tale of two waters: a study of aquatic continuum biogeochemistry.
Environmental Monitoring and Assessment. 190:96
Julian, P and T.Z. Osborne.

Letter to editor regarding Surratt D, Shindle D, Yongshan W, et al. Letter to the Editor Regarding: Julian P, 2017. Assessment of Upper Taylor Slough water quality and implications for ecosystem management in Everglades National Park.
Wetland Ecology and Management. 26(3):249 - 251.
Julian, P.

2017

Carbon pool trends and dynamics within a subtropical peatland during long-term restoration.
Ecological Processes. 6(1):43 – 57
Julian, P., S. Gerber, A.L. Wright, B. Gu and T.Z. Osborne.

Assessment of Upper Taylor Slough water quality and implication of ecosystem status in Everglades National Park.
Wetlands Ecology and Management. 25(2):191-209
Julian, P.

Iron and pyritization in wetland soils of the Florida Coastal Everglades.
Estuaries and Coasts. 40(3): 191-209
Julian, P., R. Chambers and T. Russell.

2016

Mercury stoichiometric relationships in a subtropical peatland.
Water, Air & Soil Pollution. 227(12):472
Julian, P., B. Gu and A. Wright.

Commentary on "Mitsch et al 2015, Protecting the Florida Everglades wetlands with wetlands: Can stormwater phosphorus be reduced to oligotrophic conditions?"
Ecological Engineering. 108:333-337
Julian, P.

Iron and Sulfur porewater and surface water biogeochemical interactions in a subtropical peatlands.
Soil Science Society of America Journal. 80(3):794-802.
Julian, P.

2015

South Florida Coastal Sediment Ecological Risk Assessment.
Bulletin of Environmental Contamination and Toxicology. 95(2):188-193
Julian, P.

Mercury accumulation in Largemouth Bass (*Micropterus salmoides* Lacépède) within marsh ecosystems of the Florida Everglades, USA.
Ecotoxicology. 24(1):202-214
Julian, P. and B. Gu.

Comment on and reinterpretation of Gabriel et al., (2014) 'Fish mercury and surface water sulfate relationships in the Everglades Protection Area.'
Environmental Management. 55(1):1-5
Julian, P., B. Gu and G. Redfield.

2014

Reply to "Mercury Bioaccumulation and Bioaccumulation Factors for Everglades Mosquitofish as Related to Sulfate: A Re-Analysis of Julian II (2013)."
Bulletin of Environmental Contamination and Toxicology. 93(5):517-521

TECHNICAL (LAST FIVE-YEARS)

2013 | 2019

Chapter 3A: Status of water quality in the Everglades Protection Area
South Florida Environmental Report
Julian, P., et al.

2014 | 2019

Chapter 3B: Mercury and sulfur environmental assessment for the Everglades.
South Florida Environmental Report
Julian, P., et al.

2017

Numeric Interpretation of Narrative Standards for the L-28 Interceptor Canal and Big Cypress National Preserve.
Technical Support Document: Western Everglades Planning Project.
Julian, P., et al.

PRESENTATIONS

ORAL (LAST FIVE-YEARS)

2019

Hydrologic restoration of a shallow oligotrophic marl wetland. What is the soil telling us?
Greater Everglades Ecosystem Restoration — Coral Springs, Florida
Julian, P., K. August, L. Simpson, T.Z. Osborne, D. Surratt.

2018

Don't wave the river red gums goodbye. The role of environmental flows in restoring river water quality and riparian zones along the Wimmera River.
Society of Wetland Scientist Annual Meeting — Denver, Colorado
Julian, P. and G. Fletcher.

Let's take a ride downstream. Translating nutrient spiraling concepts to wetland ecosystems.
Society of Wetland Scientist Annual Meeting — Denver, Colorado
Julian, P., S. Gerber. A.J. Reisinger, K. Larios.

Did you guess which thing was not like the others? Evaluation of wetland nutrient stoichiometry and homeostasis in a subtropical treatment wetland.
Society of Wetland Scientist Annual Meeting — Denver, Colorado
Julian, P., et al.

Translating the effects of sea-level rise in urban systems to the coastal ecosystem interface.
12th International Symposium on Biogeochemistry of Wetlands
Coral Springs, Florida
Osborne, T.Z., M.W. Clark, **P. Julian**, N. Ward, R. Collins, E.J. Philips and P. Fletcher.

Biogeochemical response of selected STA flow-ways to different flow scenarios.
12th International Symposium on Biogeochemistry of Wetlands
Coral Springs, Florida
Villapando, O., J. King, R.K. Bhomia and **P. Julian**.

One of these things is not like the other. Evaluation of wetland nutrient stoichiometry and homeostasis in a subtropical treatment wetland.
12th International Symposium on Biogeochemistry of Wetlands
Coral Springs, Florida
Julian, P., et al.

Multiple technical presentations not listed here have been presented at meetings including technical, environmental policy, restoration project planning and general public audiences.

2017

Examining the effects of hurricanes Matthew and Irma on water quality in the inter-coastal waterway, St. Augustine, FL.
American Geophysical Union — New Orleans, Louisiana
Ward, N., T. Dye, **P. Julian** and T.Z. Osborne.

Stoichiometric relationships amongst ecosystem compartments of a treatment wetland.
Southeastern Ecology and Evolution Conference — Fort Myers, Florida
Julian, P., R Bhomia, S. Gerber, and A.L. Wright.

Pyrite formation in the Coastal Everglades: Can a fool's gold indicate sea-level rise?
Society of Soil Scientist of America Annual Meeting — Tampa, Florida
Julian, P., R. Chambers, J. Kominoski, T. Troxler, A. Wright, and T.Z. Osborne.

Aquatic Productivity in Subtropical Marsh along a soil nutrient gradient – An assessment of the Everglades Stormwater Treatment Areas.
Society of Soil Scientist of America Annual Meeting — Tampa, Florida
Julian, P., R. Bhomia, A. Wright, and T.Z. Osborne.

Spatial Distribution of Soil Biogeochemical Properties in Stormwater Treatment Area 3/4 Cells 3A and 3B.
Society of Soil Scientist of America Annual Meeting — Tampa, Florida
Osborne, T.Z., R. Bhomia, **P. Julian** and K.R. Reddy.

Aquatic Productivity in Subtropical Marsh – Observations from the Everglades Stormwater Treatment Areas.
Society of Wetland Scientist Annual Meeting — San Juan, Puerto Rico
Julian, P.

Limiting Factors in Mercury Methylation Hotspot Development: The Tangled Web.
Greater Everglades Ecosystem Restoration — Coral Spring, Florida
Julian, P., B. Gu and A. Freitag.

Data Integration and Synthesis Framework for Understanding the Phosphorus Cycling and Reduction Mechanisms in STA Flow-ways.
Greater Everglades Ecosystem Restoration — Coral Spring, Florida
Gerber, S., K. Larios and **P. Julian**.

High Biotic Mercury in South Florida Wetlands: Fish Trophic Position and Wading Bird Redistribution.
Greater Everglades Ecosystem Restoration — Coral Spring, Florida
Gu, B and **P. Julian**.

Water Quality Along inflow to Outflow Gradient of the Everglades Stormwater Treatment Areas.
Greater Everglades Ecosystem Restoration — Coral Spring, Florida
Villapando, O., R. Bhomia, J. King and **P. Julian**.

2016

Status and Trends of Landscape-Scale Mercury in South Florida and the Everglades.

7th SETAC World Congress/SETAC North America 37th Annual Meeting — Orlando, Florida

Julian, P., B. Gu, K. Weaver and A. Wright

Alteration of hydrology by mangrove encroachment in saltmarsh ecosystems and potential impacts to ecosystem services.

Ecological Society of America — Fort Lauderdale, Florida

Osborne, T.Z., L.T. Simpson, T.B. Schafer, M. Camacho, **P. Julian II**, N.D. Ward, and L. Laplaca.

Carbon biogeochemical processes along a Mangrove-Salt Marsh ecotone.

Mangrove & Macrobenthos Meeting 4 — Saint Augustine, Florida

Osborne, T.Z., L.T. Simpson, T.B. Schafer, M. Camacho, **P. Julian II**, N.D. Ward, and L. Laplaca.

Interpreting effects of water management on soil nutrient cycling in an oligotrophic subtropical wetland.

Society of Wetland Scientist Annual Meeting — Corpus Christi, Texas

Julian, P., T.Z. Osborne, J. Castro, J. Sadle and L.R. Ellis. 2016.

Can soil nutrient stoichiometry determine mercury hotspot formation in a subtropical peatland? An Everglades case study.

Society of Wetland Scientist Annual Meeting — Corpus Christi, Texas

Julian, P. and A. Wright.

Hydrologic restoration of the Taylor Slough Region of Everglades National Park. Changes in water quality and implications for ecosystem management.

5th University of Florida Water Institute Symposium — Gainesville, Florida

Julian, P.

2015

An Overview of Everglades Mercury Issues: Critical Questions Remain.

Greater Everglades Ecosystem Restoration — Coral Springs, Florida

Julian, P., B. Gu, G. Redfield, and K. Weaver.

Spatial and Temporal Variation of Total Mercury in Mosquitofish from Everglades Marshes.

Greater Everglades Ecosystem Restoration — Coral Springs, Florida

Gu, B., **P. Julian** and G. Redfield.

2014

2014. Large-Scale Water Quality Improvement Projects: An Everglades Perspective.

SLER Con — Orlando, Florida

Julian, P.

POSTER (LAST FIVE-YEARS)

2019

Landscape Biogeochemistry: How hurricanes influence biogeochemistry across the Florida Coastal Everglades.
Florida Coastal Everglades Long Term Ecological Research Annual Scientist Meeting
Miami, Florida
Julian, P., E.E. Gaiser, J.S. Kominoski, E. Castaneda, T.G. Troxler, S. Davis, C. Osburn.

2018

Is the Everglades Ecosystem a stoichiometric deviant? An investigation of ecological stoichiometry along the aquatic continuum of the Everglades ecosystem.
Florida Coastal Everglades Long Term Ecological Research Annual Scientist Meeting
Miami, Florida
Julian, P., J.S. Kominoski, E.E. Gaiser and A Wymore.

Effects of Hurricane Irma on dissolved organic carbon fluxes along a salinity gradient.
12th International Symposium on Biogeochemistry of Wetlands
Coral Springs, Florida
Schafer, T.B., N. Ward, **P. Julian**, K.R. Reddy and T.Z. Osborne.

Soil nutrient enrichment post hydrologic management: A temporal analysis of Taylor slough.
12th International Symposium on Biogeochemistry of Wetlands
Coral Springs, Florida
August, K., **P. Julian** and T.Z. Osborne. 2018.

River runs through it. Evaluation of groundwater and surface water connectivity and its implications on riparian biogeochemistry and ecology.
12th International Symposium on Biogeochemistry of Wetlands
Coral Springs, Florida
Julian, P., G. Fletcher and A.L. Wright.

2017

Pyrite in the Coastal Everglades, It's more than Fool's Gold.
Florida Coastal Everglades Long Term Ecological Research Annual Scientist Meeting
Miami, Florida
Julian, P., R. Chambers, J. Kominoski and T. Troxler.

Key Factors Controlling Wetland Aquatic Productivity in the Everglades Stormwater Treatment Areas.
Greater Everglades Ecosystem Restoration Coral Spring, Florida
Julian, P., M. Powers, R. Bhomia, A. Wright and J. Dombrowski.

Spatial Distribution of Soil Biogeochemical Properties in Stormwater Treatment Area 3/4 Cells 3A and 3B.
Greater Everglades Ecosystem Restoration — Coral Spring, Florida
Osborne, T.Z., R. Bhomia, **P. Julian** and K.R. Reddy.

2016

Removal of Mercury from Surface Water by Constructed Wetlands in South Florida, USA.
7th SETAC World Congress/SETAC North America 37th Annual Meeting
Orlando, Florida
Gu, B., N. Niemeyer and **P. Julian**.

2015

Total Phosphorus and Total Nitrogen trends in Upper Taylor Slough, Everglades National Park, Florida.
24th Annual Southwest Florida Water Resources Conference
Fort Myers, Florida
Julian, P., G. Redfield and A. Wright.

2014

Ecosystem Sampling Suitability: Do my monitoring locations represent the water body?
Rookery Bay GIS Symposium — Naples, Florida
Julian, P.