Rachel Schweiker

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Curriculum Vitae

**DESIRED OCCUPATIONAL FIELDS**

Data visualization, human-computer interaction, information management and analysis, computational statistics, data journalism

**WORK EXPERIENCE**

**Oct 2015 – Present VocaliD**

Belmont, MA, USA *Content Developer*

Design visualizations and edit text for pitch deck, executive summary,

business plan, and email campaigns. Manage interactive data visualization of

10,000+ voice donors. Attend networking and outreach events. Guide

message, brand, and direction of this early stage company.

**Feb 2015 – Sept 2015**  **Understory Weather at Greentown Labs**

Somerville, MA, USA *GIS Intern*

Analyzed spatial data collected by dense networks of small weather stations in Midwestern cities to find weather phenomena of interest to scientists and insurance companies. Published visualizations featured on Boston.com, CBS Boston's WBZ-TV News, and front page of Hacker News. Improved spatial interpolation methods to include geographical variables, calculated accuracy of sensors and found corrections for misaligned stations. Created maps using R, QGIS, and Illustrator, created marketing materials (white papers and brochures), made UI/UX mockups.

**June 2013 – Sept 2014** **Max Delbrück Center for Molecular Medicine (MDC)**

Berlin, Germany *AG Poy: MicroRNA and Molecular Mechanisms of Metabolic Diseases*

*Lab Technician*

Preformed microscopic analysis to quantify the phenotypic effects of the loss or overexpression of certain proteins and microRNAs on pancreatic islets of transgenic mouse models to understand mechanisms of insulin-resistance. Acquired knowledge in the operation of microscopes (widefield, confocal, fluorescent) and various software for image analysis.

**June 2012 – May 2013 Dr. Finnerty’s Genomic Biology Laboratory**

Boston, MA, USA *Undergraduate Research Opportunity Program (UROP);*

*Undergraduate Researcher*

Secured independent research funding through UROP to investigate the differential mRNA expression that causes populations of sea anemones to adapt differently to heat stress based on their latitude of origin.

Project Title: "The Genetic Basis of Local Thermal Adaptation in the Starlet Sea Anemone, *Nematostella vectensis*"

**Sept 2010 – Sept 2011** **Dr. Fulweiler’s Coastal Biogeochemistry Laboratory**

Boston, MA, USA *Undergraduate Researcher*

Investigated changes in the benthic nitrogen cycle, particularly an increase of the greenhouse gas, Nitrous Oxide, in response to hypoxic water and pollution in New England estuaries.

**June 2010 – Aug 2010** **Minnesota Ovarian Cancer Alliance**

Minneapolis, MN, USA *Office volunteer*

Assisted with the operation of fund-raising benefits and galas, recorded inventory of donations and event supplies

**June 2009 – Aug 2009 University of Minnesota Landscape Arboretum**

Chaska, MN, USA*Science Discovery Zone Aid*

Taught children the science theme of the week, such as how to use a magnify glasses, sort types of seeds, identify plant parts, and gardening techniques.

**EDUCATION**

**Sept 2009 – May 2013 Bachelor of Arts in Marine Science**

Boston, MA, USA Minors in Geography and Biology

Boston University; College of Arts and Sciences

GPA 3.92/4.0

**Relevant courses:** Probability and Statistics, Calculus 2, Physics,

Intro to Programming with C++, Digital Image Processing,

Geographic Information Systems, Remote Sensing, Marine GIS,

Climate and Environment

**Jan 2012 – May 2012** **Tropical Ecology and Spanish Exchange Program**

Quito, Ecuador *Universidad de San Francisco de Quito*

Developed, conducted, and presented original research projects titled:

* "Quantifying species richness and maximum plant height along an elevational transect on Volcán Cotopaxi"
* "The influence of leaf orientation, texture, and drip tip length on epiphyll cover"
* "Variability in faunal trail use in the Amazonian rainforest"
* "Species specific group sizes and activity periods of monkeys in Yasuní National Park, Ecuador"
* "Epiphyte species richness in emergent trees in Yasuní National Park"
* "Foraging relationships between blue-footed boobies (*Sula nebouxii*) and the brown pelican (*Pelecanus occidentalis*) near Puerto Lopez"
* "Sea Hare (*Dolabrifera dolabrifera*) camouflage quality and color change in rocky intertidal shores in Puerto Cayo, Montañita, and Puerto Lopez"
* "The ideal habitat of the purple urchin (*Echinometra vanbrunti*) in the rocky intertidal zone near Puerto Lopez, Ecuador"

**Sept 2011 – Dec 2011 Boston University Marine Semester**

Boston, MA, and *BU Marine Program*

Wee Wee Caye, Belize

Developed, conducted, and presented original research projects titled:

* "The effects of tidally driven temporal variation on measuring intertidal cohesive sediment erosion threshold"
* "The ability of *Fundulus majalis* to form a school in varying visual conditions"
* "The vile vortex: Does the Bermuda triangle deserve its reputation? An Investigated with ArcGIS"
* "An investigation of seismic fractures of Belizean coral reefs using the SeaView camera"

**PUBLICATIONS**

Aug 2015 “Capturing strong downbursts from a supercell in Kansas City”. Blog Post.

***Rachel Schweiker,*** *Alex Kubicek,* *Nicole Homeier*

July 2015 “EF1 tornado hits Kansas City, damaging buildings”. Blog Post.

***Rachel Schweiker,*** *Alex Kubicek*

July 2015 “Understory sensor data: Weather monitoring networks accurately measuring hail and wind”. White Paper.

*Nicole Homeier,* ***Rachel Schweiker,*** *Alex Kubicek*

June 2015 “Tracking tropical storm Bill through Dallas”. Blog Post.

***Rachel Schweiker,*** *Alex Kubicek*

May 2015 “Tracking cold fronts with hyperlocal weather networks”. Blog Post.

***Rachel Schweiker***

May 2015 “Understory captures evidence of temperature inversion in Kansas City”. Blog Post.

***Rachel Schweiker,*** *Nicole Homeier, Alex Kubicek*

Aug 2014 "A revised StellaBase enables comparative transcriptomic studies on multiple populations, life stages, and environmental conditions in the model cnidarian,*Nematostella vectensis*"

*Tristan Lubinski, Brian Granger, Derek Stefanik, Lauren Friedman, Sarah McAnulty,****Rachel Schweike****r, John Finnerty*

  Submitted to: Nucleic Acids Research, in revision

**AKNOWLEDGED CONTRIBUTIONS**

# July 2015 miR-184 Regulates Pancreatic β-Cell Function According to Glucose Metabolism. *Tattikota et al.* The Journal of Biological Chemistry.

Nov 2014 Spatial and historic variability of benthic nitrogen cycling in an anthropogenically impacted estuary. *Foster and Fulweiler.* Frontiers in Marine Science.

March 2014 (Nearly) A Decade of Directly Measured Sediment N2 Fluxes: What Can Narragansett Bay Tell Us About the Global Ocean Nitrogen Budget? *Fulweiler and Heiss.* Oceanography.

Jan 2014 “Argonaute2 mediates compensatory expansion of the pancreatic β cell.” *Tattikota et al.* Cell Metabolism.

Dec 2012 Impacts of long-term fertilization on salt marsh tidal creek benthic nutrient and N-2 gas fluxes. *Vieillard and Fulweiler.* Marine Ecology

**CONFERENCE PRESENTATIONS**

Oct 2012 "The genetic basis of local thermal adaptation in the starlet sea anemone *Nematostella vectensis*"

***Rachel Schweiker****, Tristan Lubinski and John Finnerty*

Poster presentation at the Boston Undergraduate Research Opportunity Program conference

Sept 2012 "Investigating the genetic basis of local thermal adaptation in *Nematostella vectensis*"

Talk at second annual *Nematostella* research conference

**ACTIVITIES & AWARDS**

May 2013 **Excellence in Marine Science Award**

* Valedictorian of undergraduate program

May 2013 **Graduated with Summa Cum Laude Latin Honors**

* Top 5% of graduating class, "with highest honor"

May 2013 **Marine Science Graduation Student Speaker**

* Elected by classmates to speak at graduation ceremony

May 2013 **Phi Beta Kappa Member**

* Oldest and most prestigious honors society in the US

Aug 2012 – May 2013 **Marine Science Association, Treasurer**

* Organized film screenings, community service events, lectures,

harbor cruise for 100+ attendees

* Developed club website, designed t-shirts and event posters

Feb 2013 – March 2013**Boston University Marine Lab Tour Guide**

* Introduced prospective students to science lab equipment

Jan 2010 – May 2013 **College of Arts and Sciences Dean's List** (all semesters)

* Awarded to students with a GPA above 3.5

Sept 2009 – May 2013 **The University Scholarship**

* Awarded over half of tuition (~$13,000/ semester, $104,000 total) due to merit

Sept 2009 – May 2010 **Boston University Honors Program**

* Top 10% of incoming freshman invited to join in special curriculum

June 2009 **International Baccalaureate Certificate and Medallion**

* Passed higher level IB tests for English, Math, Art, standard level Physics, Spanish, and History, and completed 60 hours of community service

April 2006 **National History Day State Champion**

* Traveled to Washington DC to present project about Boston Marathon runner at the national competition

**SKILLS**

**Computer**

Adobe Illustrator, Photoshop, InDesign VocaliD and self-taught

QGIS, R, Mapbox Studio, SQL, Git, Google Maps API Self-taught, practiced at Understory

Image J, Fiji, Cell Profiler, GIMP, Imaris, Zen Image analysis at Max Delbrück Center

HTML, CSS, Javascript, and Python Self-taught and Finnerty Lab

ArcGIS 10, ENVI, C++ Courses at Boston University

Wordpress website development Marine Science Association and Max Delbrück Center

Microsoft Word, Excel, PowerPoint High school through present work

**Laboratory**

Confocal, standard light and fluorescent Max Delbrück Center

microscopy; isolation, embedding, sectioning

of mouse brain, pancreas, fat, liver; immuno-

fluorescence, genotyping, animal handling

mRNA-seq library preparation, PCR, Finnerty Lab

population management, RNA isolation,

spectrophotometry, gel electrophoresis

Gas chromatography, lab sterilization, fieldwork, Fulweiler Lab

Millipore, sediment incubations

**Social**

Writing Blog posts and White Paper at Understory, Business Plan at VocaliD

Teaching Trained 4 new lab technicians at Max Delbrück Center

Public speaking for data presentations Finnerty Lab, Max Delbrück Center

Collaborating with colleagues All research and work experiences

Group leadership Marine Science Association treasurer

Guiding Tours Marine lab tour guide

**Organizational**

Maintain efficient schedule to balance projects Max Delbrück Center, Understory, VocaliD

Inventory and ordering, manuscript editing Max Delbrück Center

Kept records of heat stress and growth anemone trials Finnerty Lab

Labeled and organized sediment, water, plant samples Fulweiler Lab

**Language**

English Native Language

Spanish B1

German A1