Rachel Layko

rlayko@asu.edu | https://twitter.com/RachelLayko | Google Scholar

EDUCATION

Ph. D. in Geography   **2026 (anticipated)**
Arizona State University   Tempe, AZ
School for Geographical Sciences & Urban Planning, Center for Global Discovery and Conservation Science
Advisor: Dr. Mary Donovan

B.S. in Biology   **2019**
The College of William & Mary, Summa Cum Laude   Williamsburg, VA
Minor in Marine Science, concentration in Geospatial Analysis
    Honors: Phi Beta Kappa Honor Society, Mortar Board Honor Society, Alpha Lambda Delta Honor Society,
    Phi Eta Sigma Honor Society, James Monroe Scholar, Sharpe Community Scholar

Sede de Occidente, **Universidad de Costa Rica (no degree awarded)**   **1/2018–5/2018**
USAC Semester Study Abroad Program   San Ramón, Costa Rica

PEER- REVIEWED PUBLICATIONS

Runfola D, Anderson A, Baier H, Crittenden M, Dowker E, Fuhrig S, Goodman S, Grimsley G, **Layko R,**
Melville G, Mulder M. geoBoundaries: A global database of political administrative boundaries. Plos one. 2020
April 24;15(4):e0231866.

OTHER PUBLICATIONS

Romo F, Mickey K, Steinberg S, **Layko R.** At All Career Levels, Mentoring Drives Success**.** ArcNews. 2021
November. *https://www.esri.com/about/newsroom/arcnews/at-all-career-levels-mentoring-drives-success/*

Gerike M, **Layko R,** Romo F. Challenges & Strategies in Volunteer Program Management. Directions Magazine.
2021 July 13. *https://www.directionsmag.com/article/10901*

Layko R. A Long Road to Recovery: Rebuilding After Hurricane Florence in North Carolina. Pulitzer Center.
2019 May 6. *https://pulitzercenter.org/stories/long-road-recovery-rebuilding-after-hurricane-florence-north-carolina*

Diehl T, **Layko R.** Healthy Beginnings Podcast. 2017 April. *https://soundcloud.com/iharkradio/sets*

Layko R. Citizen Science GIS Program. Youth Mappers. 2017 October 3.
https://www.youthmappers.org/post/2017/10/03/citizen-science-gis-program

RESEARCH GRANTS AND AWARDS

Arizona State University School of Geographical Science & Urban Planning Nexus Research Fellowship
- $26,500   *8/2021 – 5/2022*

National Science Foundation Graduate Research Fellowship Program Honorable Mention   *3/2021*

Volunteer of the Year, Historic Virginia Land Conservancy   *11/2020*
- Recognized for creating an interactive map of the organization's properties

Dr. Marilyn O'Hara Ruiz Young Professional Scholarship   *10/2019*
- Selected as one of two young professionals funded to attend the 2019 GIS-Pro Conference

Upperclassman Monroe Research Grant   **2018**
- $3,000

Freshman Monroe Research Grant   **2016**
- $1,000

Howard Hughes Medical Institute (HHMI) Freshman Research Program   **2016**
- $250

Morgan Nelson Research Award   **2016**
- $300

RESEARCH AND PROFESSIONAL EXPERIENCE

National Park Service   **Jacksonville**, **FL**
Ecology Assistant, Southeast Coast Inventory and Monitoring Network   *1/2021–5/2021*
- Collaborated with partner organizations to validate data
- Updated and organized long-term coastal wetland elevation monitoring datasets for public use
- Assisted with the installation of surface elevation tables (SET) to collect wetland elevation data
- Created static and digital maps for Timucuan Resource Managers and Park Lands Office to improve understanding and management of park assets

National Audubon Society   **Apex**, **NC**
Project Manager, Public Lands Mapping   *7/2020–6/2021*
- Lead cross-functional teams in the planning and execution of GIS projects related to the Public Lands Conservation Mapping of California
- Developed and managed standards, tools, templates and metrics to be used by the Audubon Policy Department
- Collaborated with key stakeholders to manage and guide project scope, goals, and deliverables
- Worked with our campaigns team to build a StoryMap: https://arcg.is/0nOa4b to introduce users to the conservation goals and approach of Audubon's 30x30 goals in California
- Created a custom print tool to allow users to print formatted and branded maps from the web application
- Created a How-To StoryMap : https://arcg.is/ifnGO to guide users with varying familiarity using geospatial tools through the different functionalities and tools of the web application

William & Mary   **Williamsburg, VA**
Center for Geospatial Analysis Fellow   *8/2019–7/2020*
- Developed and updated course materials for remote sensing, cartography, and GIS courses
- Trained and instructed students in the use of GIS software and tools, GPS, and remote sensing
- Collaborated with interdisciplinary team to support student and faculty research projects across disciplines
- Collected and analyzed national agriculture and population datasets for faculty research project to model relationship between herbicide application and species diversity
- Applied data analysis and cartographic skills to technical tasks to create polished map products and graphics

National Audubon Society   **Williamsburg**, **VA**
Dangermond Fellow   *6/2019–6/2020*
- Administered and maintained an Enterprise GIS with over 1,200 users
- Inspected and edited complex multi-year community science data sets to support monitoring programs, assisted with data entry of field data to GIS formats to inform biological investigations
- Trained and assisted staff in GIS tools and methodologies, filled data requests, administered accounts and licenses, developed web applications, and polished map products to illustrate the results of analysis
- Created survey using Survey123 to quantify 160+ projects completed by our team to support GIS users
- Reviewed and synthesized acquired data for web application to display 30+ large datasets to support conservation mapping applications
- Provided support in the acquisition, development, organization, and maintenance of digital and spatial data
- Created StoryMap presentation to share my experiences with internal and external audiences https://arcg.is/110a5C

The Nature Conservancy   **Miami, FL**
Florida Coral Reef Fisheries Mapping GIS GLOBE Intern   *6/2019–8/2019*
- Developed spatially explicit data layers for incorporation into reef fish biomass model for coral management jurisdictions (state coral reef management zones, national parks and national marine sanctuaries)
- Prepared map products to display assessment of spatial data in online and print format
- Participated in planning meetings to review model results with a diverse group of state and federal management stakeholders, including Florida Fish and Wildlife Commission, Department of Environmental Protection, Florida Keys National Marine Sanctuary, and U.S. National Park Service to support cultural and natural resource management

Geospatial Evaluation and Observation Lab   **Williamsburg**, **VA**
GeoBoundaries Undergraduate Research Assistant   *9/2018–5/2019*
- Performed geospatial analysis to improve international aid transparency
- Compiled subnational administrative boundary spatial data for integration into an open source platform

The Nature Conservancy   **Dominican Republic**
Resilient Islands Project   *6/2018–10/2018*
- Used Phantom 4 Drone to collect data and survey coral reef health and to create fine resolution flood models to assess community vulnerability to storm events
- Utilized Dominican Republic Census data to develop vulnerability indices
- Digitized 4,000+ structures and 100+ roads from drone imagery to map flooding vulnerability
- Created outreach materials using ArcGIS StoryMaps to display final products: https://arcg.is/rjLaP

National Science Foundation   **Hopkins Village**, **Belize**; **Orlando, FL**
Research Experience for Undergraduates   *6/2017–8/2017*
- Analyzed data on marine debris using community-based GIS with an interdisciplinary collaborative team of Belizean and American students
- Collaborated to create methodology to survey and catalog marine debris along the coast
- Developed geodatabases to collect quantitative data of marine debris using Collector
- Team conducted 100+ interviews with community members, collected local data via perception mapping
- Wrote a community report to summarize our findings: https://hopkinsvillage-ucfonline.opendata.arcgis.com/documents/debris-team-community-report-from-2017/explore

William & Mary Institute for Integrative Bird Behavior Studies   **Williamsburg**, **VA**
Undergraduate Student Researcher   *1/2016–12/2017*
- Investigated the effects of methylmercury on spatial memory and oxidative stress in terrestrial songbirds
- Assisted with data analysis and manuscript writing

TEACHING EXPERIENCE

William & Mary Center for Geospatial Analysis   **Williamsburg**, **VA**
Teaching Assistant for Introduction to GIS   *9/2017–5/2019*
- Assisted 225+ students with weekly lab activities, final projects, learning software, using GPS units to collect data, and transferring data from GPS to computers
- Provided constructive feedback on analysis methods and cartographic products

Virginia Institute of Marine Science (VIMS)   **Gloucester, VA**
Eco-Ambassador   *9/2016–4/2017*
- Partnered with diverse group of education and outreach staff to teach the public about different marine science topics through the creation of monthly Discovery Labs
- Synthesized scientific information about different marine science topics and climate change
- Created education posters, displays, and interactive exhibits for school-aged children and their parents

William & Mary Office of Academic Advising   **Williamsburg, VA**
Peer Adviser   *5/2017–8/2017, 5/2018–8/2018*
- Selected to teach incoming students about William & Mary's curriculum

SERVICE & LEADERSHIP POSITIONS

URISA
Co-chair of Mentoring Subcommittee   *1/2020–9/2021*
Vanguard Cabinet Member   *1/2020–present*
- Coordinate volunteers, lead monthly meetings, collaborate with other subcommittees

Phi Beta Kappa   **Williamsburg**, **VA**
Webmaster   *8/2019–5/2020*
- Updated website for Phi Beta Kappa Alpha Chapter using Cascade web content management system

Early Career Professionals Affinity Group, National Audubon Society   *1/2020–5/2020*
Steering Committee Member, Co-Lead of Professional Development Committee
- Worked with colleagues to design the framework and charter for this newly formed group

PRESENTATIONS AND INVITED CONTRIBUTIONS

Building your Professional GIS Portfolio   **Baltimore, MD**
GIS-Pro 2021 (Accepted Presentation)   *10/2021*

Chart your Future, Map your Way to New Opportunities, & Elevate your Career   **Baltimore, MD**
GIS-Pro 2021 (Accepted Presentation)   *10/2021*

Elevate your Elevator Pitch!   **Baltimore, MD**
GIS-Pro 2021 (5-minute lightning talk)   *10/2021*

Addressing for NG9-1-1: Requirements, Resources, and Managing Change   **Baltimore, MD**
GIS-Pro 2021 (Session Moderator)   *10/2021*

Applying Geospatial Tools to Conservation: Seas to Skies   **Remote**
Ayiti Analytics Data Bootcamp (Guest Lecture)   *6/2021*

Seas to Skies: Conservation GIS Applications   **Remote**
William & Mary Center for Geospatial Analysis (Guest Lecture) *2/2021*

From Liberal Arts to Labs: Enhancing GIS Use Across Campus   **Remote**
GIS-Pro 2020 (Accepted Co-Presentation)   *10/2020*

Preparing and Mentoring GIS Professionals for our Dynamically Changing GIS Industry   **Remote**
GIS-Pro 2020 (Invited Session Moderator)   *10/ 2020*

The Dangermond Fellows Year in Review   **Remote**
National Audubon Society (Invited panel presentation to all staff)   *5/2020*

StoryMaps and Drones   **Williamsburg**, **VA**
Historic Virginia Land Conservancy (Invited presentation at annual board meeting)   *11/2019*

Mapping Resiliency to Climate Change in the Dominican Republic   **Williamsburg**, **VA**
William & Mary Environmental Science and Policy Lunch Seminar (Invited presentation)   *10/2019*

Florida Coral Reef Fisheries Mapping Results and Review of GLOBE Internship   **Miami**, **FL**
The Nature Conservancy Florida Chapter & North America Oceans Team (Invited seminar)   *8/2019*

Fishy Data: Modeling Fishing Pressure Helps Conserve Coral Reefs **San Diego**, CA
Esri User Conference (5-minute lightning talk) *7/2019*

Drone Research with The Nature Conservancy **Richmond**, VA
Central Virginia GIS User Group (Invited presentation) *5/2019*

Resiliency to Climate Change in the Dominican Republic **Williamsburg**, VA
William & Mary Day for Admitted Students (Invited presentation to prospective students & families) *5/2019*

StoryMaps Tool Training **Remote**
The Nature Conservancy Caribbean Team (Co-presented invited webinar) *3/2019*

Resiliency to Climate Change in the Dominican Republic **Williamsburg**, VA
Geospatial Research Symposium (Invited presentation) *3/2019*

Citizen Science GIS: Collaborating with Communities to Investigate **Redlands**, CA
Marine Debris in Belize *11/2017*
Esri Ocean GIS Forum (Co-presented 15-minute talk)
- Video of presentation: https://youtu.be/RBqNUpJcLkI

PROFESSIONAL TRAINING

- URISA Decrypting Risk, Resilience, Social Vulnerability Data & Indices Workshop. October 2021. Half-day workshop.
- URISA GIS Leadership Academy, Remote. April 2021. Weeklong workshop.
- Pix4Dmapper Essentials Course, Remote. March 2021. Three-day workshop.
- URISA Building Community Using Geospatial Tools Workshop, New Orleans, LA. September 2019. Half-day workshop.
- URISA Experimental Learning Techniques to be More Effective, Remote. September 2020. Half-day workshop.
- Esri Managing Geospatial Data in ArcGIS, Redlands, CA. March 2020. Two-day training.

SKILLS

Geospatial Data Analysis: ArcGIS 10.x, ArcGIS Pro 2.x, Esri StoryMaps, ArcGIS Online, QGIS, ModelBuilder, vector analysis, raster analysis, digitizing, cartographic production, geodatabase creation and management, data editing, Image Analyst, supervised classifications, unsupervised classifications
Remote Sensing: ENVI, supervised classifications, unsupervised classifications, Image Analyst, object-based classification
Additional Technical Skills: Microsoft Office Suite, R Programming Language
Data Collection: Drones, GPS, Esri Collector, Survey123, citizen surveys, perception mapping
Lab Skills: animal care, limited experience banding and bleeding birds
FAA-Certified Drone Pilot
PADI Open Water Certified
Language: Intermediate Spanish
Other Skills: Cascade CMS, Podio, Canva