Gregory M. Verutes

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KEY QUALIFICATIONS

- Spatial modeler with a focus on stakeholder involvement, participatory mapping, and data science
- GIS programmer/developer of decision-support tools for conservation planning, management, & monitoring
- Storyteller with an emphasis on data-driven reporting, design, visualization, and capacity-strengthening

EDUCATION

Campus do Mar, University of Santiago de Compostela, A Coruña, Spain   2020 (expected)
Doctor of Philosophy, Marine Science, Technology & Management

San Diego State University, College of Arts & Letters, San Diego, CA USA   2008
Masters of Science, Geographic Information Science

Cornell University, College of Human Ecology, Ithaca, NY USA   2004
Bachelor of Science, Policy Analysis & Management

SKILLS

Technical:
- Geographic Information Systems (ArcGIS, QGIS, Google Earth Engine, MAPublisher)
- Design / Web (Illustrator, Photoshop, InDesign, Leaflet, CARTO, Mapbox, Tableau, D3)
- Programming / Revision Control (Python, JavaScript, HTML5, CSS, jQuery, GitHub)
- Statistics / Database Management (R, SciPy/NumPy, SPSS, SQL, Microsoft Excel & Access)

Languages: English (fluent), Spanish (conversational)

Research methods: Spatial analysis, survey instruments, game-based learning, online decision-support

PROFESSIONAL EXPERIENCE

MarFishEco, Edinburgh, Scotland, UK
Data Science & GIS Lead   September 2019 – present
Provide insights to help business and conservation leaders understand marketplace dynamics, fisher behaviors, and emergent trends using large fisheries datasets to guide quantitative analyses and the presentation of data.

BayGeo Education Center, Oakland, CA
Instructor   April 2019 – present
Teach GIS, Python programming and visualization workshops to students, NGO, and private sector employees.

National Audubon Society, San Francisco, CA
Data Scientist & Visualization Specialist   October 2016 – March 2019
Build data-driven reports and systems to track Audubon's progress as an Accountable Conservation Organization for fundraising and use by conservation staff. Design interactive visualizations and stakeholder engagement exercises to demonstrate conservation planning approaches using social simulation, AI and machine learning.

Natural Capital Project / Stanford University, Palo Alto, CA
Training Program Manager   February 2013 – October 2016
Ecosystem services modeler and analyst for marine use-cases, award-winning decision-support apps and publications. Led a team of instructors offering workshops in 15 countries on topics ranging from marine planning and spatial modeling to graphic design and web mapping. Developed online and in-person curricula.

GIS Specialist   July 2010 – present
Primary architect for the marine InVEST suite of decision-support tools; designed to help inform more cost-effective investments in natural resources. Provided GIS support to an interdisciplinary team of scientists based in Seattle, Palo Alto and Washington DC. Designed publication-quality visuals, web maps and analytical platforms.

Wake Forest University, Winston-Salem, NC
Research Faculty, Graduate School of Arts and Sciences   June 2014 – June 2016
Co-taught grad seminar on natural resource management and environmental modeling for MA in Sustainability.

World Wildlife Fund, Washington, DC

GIS Analyst   January 2010 – July 2010

Provided spatial analysis and cartographic support to different teams across WWF's Conservation Science Program including their freshwater and forest carbon initiatives. Designed and implemented an organization-wide workflow for collecting, processing and managing geospatial data.

National Geographic Society, Washington, DC

Instructor and Geography Intern   August 2009 – August 2011

Provided GIS and graphic design instruction to research editors at National Geographic Magazine. Served as researcher cartographer for NGS maps division in support of their *Atlas of the World, Ninth Edition* publication.

Ionian Village, Glyfa, Greece

Camp Counselor   Summer 2006 and 2007

Served as summer camp counselor teaching athletics, music and Greek culture. Led expeditions of more than 150 Greek-Americans (ages 8-18) with travel across the country to visit significant sites of Greek history and culture.

Baja Directions, Inc., Solana Beach, CA

Cartographer and GIS Technician   January 2007 – August 2009

Utilized GIS and graphic design software to publish sportfishing atlases and assorted charts of Southern California and Mexico for sale nationwide. Served as lead for layout, preparing proofs and finalizing files for print and distribution. Compiled high-resolution digital dataset and metadata package for sale in marine GPS transponders.

RECENT PUBLICATIONS

Verutes, G.M., Johnson, A.F., Caillat, M., Ponnampalam, L.S., Peter, C., Vu, L., Junchompoo, C., Lewison, R.L., Hines, E., (in press). Using GIS and stakeholder involvement to innovate marine mammal bycatch risk assessment in data-limited fisheries. *PLoS One.*

Hines, E., Ponnampalam, L.S., Junchompoo, C., Peter, C., Vu, L., Huynh, T., Caillat, M., Johnson, A.F., Minton, G., Lewison, R.L., **Verutes, G.M.** (2020). Getting to the bottom of bycatch, a GIS-based toolbox to assess the risk of marine mammal bycatch. *Endangered Species Research,* 42: 37-57.

Taylor, L., Curson, D., **Verutes, G.M.**, Wilsey, C. (2020). Mapping sea level rise impacts to identify climate change adaptation opportunities in the Chesapeake and Delaware Bays, USA. *Wetlands Ecology and Management.*

Michel, N.L., Whelan, C.J., and & **Verutes, G.M.** (2020). Ecosystem services provided by Neotropical birds. *Ornithological Applications*, 122, 1–21.

Silver, J.M., Arkema, K.K., Griffin, R.M., Lashley, B., Lemay, M., Maldonado, S., Moultrie, S.H., Ruckelshaus, M., Schill, S., Thomas, A., Wyatt, K., & **Verutes, G.M.** (2019). Advancing Coastal Risk Reduction Science and Implementation by Accounting for Climate, Ecosystems, and People. *Frontiers in Marine Science* , 6, 556.

Reiblich, J., Hartge, E., Wedding, L. M., Killian, S., & **Verutes, G. M.** (2019). Bridging climate science, law, and policy to advance coastal adaptation planning. *Marine Policy*, 104, 125-134..

Verutes, G.M., Arkema K.K., Clarke-Samuels C., Wood S.A., Rosenthal A., Rosado S., et al. (2017). Integrated planning that safeguards ecosystems and balances multiple objectives in coastal Belize. *International Journal of Biodiversity Science, Ecosystem Services & Management* 13, no. 3: 1-17.

Arkema, K.K., **Verutes, G.M.**, Wood, S.A., Clarke, C., Rosado, S., et al. (2015). Embedding ecosystem services in coastal planning leads to better outcomes for people and nature. *Proceedings of the National Academy of Sciences* 112.24: 7390-7395.

Verutes, G.M., Huang, C., Estrella, R.R., & Loyd, K. (2014). Exploring scenarios of light pollution from coastal development reaching sea turtle nesting beaches near Cabo Pulmo, Mexico. *Global Ecology and Conservation.*

Verutes, G.M. & Rosenthal, A. (2014). Using simulation games to teach ecosystem service synergies and trade-offs. *Environmental Practice*, 16(3), 194-204.

Arkema, K.K., Guannel, G., **Verutes, G.**, Wood, S.A., Guerry, A.D., Ruckelshaus, M.H., et al. (2013) Coastal habitats shield people and property from sea-level rise and storms. *Nature Climate Change.*

PARTICIPATION IN RESEARCH PROJECTS

- **SmartBioR: Habitat risk assessment in the Ria de Averio**   2019 – present
  Adapt and apply an existing database of habitat maps in Ria de Aveiro to analyze risk to prioritized coastal-marine habitats under different management scenarios of natural endogenous resources in Northern Portugal.

- **Climate Smarting MPAs & Coasts in the MesoAmerican Reef**   2019 – present
  Produce inundation maps to identify exposure and risk to infrastructure from sea level rise and coastal hazards.

- **Cephs & Chefs: Octopus, Squid, Cuttlefish, Sustainable Fisheries and Chefs**   2018 – present
  Analyze and visualize drivers and emergent trends in global trade flows of cephalopods using R and Python.

- **WETFEET**   2018 – present
  NSF-funded research to investigate how warming temperatures and invading plants alter marsh elevation at sites along NE Florida. Built vulnerability model to characterize exposure to coastal hazards inside an estuary.

- **Marine Spatial Planning in Chiloe Island**   2018 – 2019
  Support local NGO and regional government in designing a tradeoff analysis that aims to balance multiple ocean objectives including fishery harvest, aquaculture production, recreation opportunities, and scenic quality.

- **Getting to the Bottom of Bycatch: A toolbox to reduce bycatch of marine mammals**   2016 – 2019
  Engaged state agencies, NGOs, and academics to co-develop a fisheries management tool that creates localized bycatch risk assessments in data-limited field sites with active small-scale fisheries.

- **Climate Change Adaptation in Coastal California**   2015 – 2017
  Met with state and federal government agencies and coastal planners to build transferable spatial analysis tools that bridge climate adaptation science with applicable land use decisions and legal/policy guidance.

- **Coastal Zone Management in Barbados**   2014 – 2015
  Completed a consultancy for the Inter-American Development Bank that included fieldwork to study the impacts of coastal development, overfishing, and water quality on the reef fisheries of Barbados.

- **Belize Integrated Coastal Zone Management Plan**   2012 – 2016
  Engaged scientists, marine managers and other stakeholders as part of Coastal Advisory Committees to map and value returns of spiny lobster fishery, coastal protection, tourism and recreation in coastal Belize.

- **Marine InVEST Natural Capital Toolbox**   2010 – 2015
  Served as lead architect of spatially explicit ecological economics models in ArcGIS and Python.

- **San Diego Bay Watersheds Common Ground Project**   2006 – 2007
  Built water quality monitoring programs and integrated these data on a watershed level using a web-based GIS.

GRANTS & AWARDS

- AI for Earth Grantee, Microsoft   2018
- Best Paper, Society of Environmental Toxicology and Chemistry   2017
- Global Disaster Resilience App Challenge, UN Office for Disaster Risk Reduction   2014
- Climate Grantee, CartoDB   2014
- Best Book/Atlas, Cartography and Geographic Information Society   2011
- Student Award in Mapping, National Geographic Society   2009
- Graduate Research Scholarship, San Diego State University Graduate Division   2008

CONSULTANCIES & SPECIAL CONTRIBUTIONS

- Blue Forest Conservation   2020 - present
- Pixar Animation Studios   2019
- Field Museum of Natural History   2019
- PeerJ (academic editor)   2018 - present
- PBS NewsHour   2017
- The New York Times   2016
- United Nations Environment Programme   2013 - 2017
- WWF Living Planet Report   2010, 2014
- National Geographic Magazine   2010-2013

PROFESSIONAL MEMBERSHIPS

Nat. Geog. Society | Int'l Council for Exploration of the Sea |Audubon Society | Am. Assoc. of Geographers