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ACADEMIC PREPARATION

- 2018 **Ph.D. Fisheries Science. Virginia Institute of Marine Science.** College of William & Mary. Dissertation: Multi-scale phylogenetics of Gadiformes with emphasis on hakes (*Merluccius*, Merlucciidae). Dr. Eric J. Hilton
- 2007 **M.Sc. Biological Sciences. University of Nebraska-Lincoln, USA.**
Thesis: Molecular Approaches to Study Relationships among Families of Gadiformes Fishes. Dr. Guillermo Ortí
- 2001 **B.Sc. Biology with major in Ichthyology. Universidad Nacional de Colombia.**
Thesis: Characterization of the demersal fish community of the Colombian Caribbean slope (300- 500 m) and some zoogeographic comments. *Magna Cum Laude*. Dr. Arturo Acero.

PROFESSIONAL APPOINTMENTS

- 2019 – Present **NOAA National Systematics Laboratory.** NRC Research Associate. Drs. Allen Collins & Carole Baldwin.
- 2019 **Smithsonian Institution DNA Barcode Network (SIBN).** Dr. Niamh Redmond
- 2018 – 2019 **Smithsonian Institution.** National Museum of Natural History - Research Fellow (Department of Vertebrate Zoology, Fish Division). Dr. Carole Baldwin.
- 2016 – 2018 **Smithsonian Institution.** National Museum of Natural History - Pre-doctoral Fellow. Multi-Scale Phylogenomics of Gadiformes with Emphasis on Hakes (*Merluccius*, Merlucciidae). Dr. Carole Baldwin
- 2015 **Shanghai Ocean University.** College of Fisheries and Life Science. Guest Scientist Training in Gene Capture of Single-Copy Genes as Molecular Markers for Phylogenomic Studies. Dr. Chenhong Li.
- 2011 **The George Washington University** - Molecular Lab Technician.
Euteleost Tree of Life (ETol) using phylogenomics. Dr. Guillermo Ortí.
- 2007 – 2010 **Center for Marine Science.** University of North Carolina Wilmington - Research Assistant.
Taxonomy, biodiversity, ecology, and population dynamics of shelf-edge, open ocean, and deep-sea fishes off southeastern of United States. My responsibilities at sea included taxonomic identification of target species to collect otoliths, tissue samples, data management, etc. At the lab, taxonomic identification, data analysis, and writing reports and scientific papers. Dr. Steve Ross.
- 2001 – 2003 **Makuriwa Colombian Marine Natural History Museum (INVEMAR)** - Research Associate.
Evaluation of the ecological impacts caused by the construction of Urrá I hydroelectric dam on the fish community of the Sinú River, Colombia. My responsibilities included river, estuarine and marine areas, fish surveys with local communities, taxonomic identification, assessment of community and population structure responses to dam onset, biophysical parameters, stomach content and gonads analyses. Oscar Solano.

FELLOWSHIPS & AWARDS

- 2019 NRC Research Associateship award (\$54,000)
- 2016-2018 Smithsonian Institution Pre-Doctoral Fellowship (\$36,000)
- 2016-2017 NSF - Doctoral Dissertation Improvement Grant (DDIG) (\$18,000)
- 2015 NSF - East Asia & Pacific Summer Institutes (EAPSI) (\$10,000)

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| 2011-2015 | Virginia Institute of Marine Science. Graduate Student Research Grant (\$4,600) |
| 2013 | Virginia Institute of Marine Science. John E. Olney Sr. Ichthyology Award |
| 2004-2006 | Initiative on Ecology and Evolutionary Analysis. University of Nebraska (\$7,500) |
| 2004-2006 | School of Biological Sciences, Special Funds. University of Nebraska (\$6,500) |
| 2005 | The Diversity of fishes. Cornell University, Shoals Marine Laboratory (\$3,000) |
| 2003 | Lakeside Foundation Grant. California Academy of Sciences (\$6,000) |
| 2002 | The Museum of Comparative Zoology. Harvard University (\$7,000) |

LANGUAGES: Spanish (Native speaker), English (Fluent).

PUBLICATIONS

Submitted

- 1 **Roa-Varón, A.**, Dikow, R., Li, C., Carnevale, G., Baldwin, C. C., Tornabene, L., Hilton, E.J. A Time-Calibrated Phylogenomic Analysis of Gadiform Fishes (Teleostei, Paracanthopterygii, Gadiformes). Journal: Syst. Biol.

Published

- 2 **Roa-Varón, A** & Iwamoto, T. 2019. Red List Assessment for 67 species belonging to the orders Ateleopodiformes, Cetomimiformes, Gadiformes, Lophiiformes, Perciformes and Polymixiiformes. **IUCN Red List of Deep-Sea Bony Fishes.**
- 3 Ross, S.W., Iwamoto, T. & **Roa-Varón, A.** 2019. Red List Assessment for six species belonging to the orders Gadiformes and Polymixiiformes. **IUCN Red List of Deep-Sea Bony Fishes.**
- 4 Quattrini, A.M., McClain-Counts, J.P., Ross, W.S., Artabane, **Roa-Varón, A.** McIver, T.C., Rhode, M., & Ross, S.W. 2019. Distribution of Anguilliform Leptocephali in the Gulf of Mexico, with notes on feeding habits based on stable isotope analysis J. Fish. Biol. DOI 10.1111/jfb.13933
- 5 Quattrini, A.M., Demopoulos, A.W.J., Singer, R., **Roa-Varón, A.** & Chaytor, J.D. 2017. Demersal Fish Assemblages on Seamounts and other Rugged Features in the Northeastern Caribbean. Deep Sea Research I: Oceanographic Research Papers. DOI:[10.1016/j.dsr.2017.03.009](https://doi.org/10.1016/j.dsr.2017.03.009)
- 6 Gaither, M.R., Violi, B., Gray, H., Neat, F., Drazen, J.F., Grubbs, R.D., **Roa-Varón, A.**, Sutton, T.T. & Hoelzel, R. 2016. Depth as a driver of evolution in the deep sea: Insights from grenadiers (Gadiformes: Macrouridae) of the genus *Coryphaenoides*. Mol. Phylogen. Evol. 104:73-82.
- 7 Betancur-R, R., Broughton, R.E., Wiley, E.O., Carpenter, K., López, J.A., Li, C., Holcroft, N.I., Arcila, D., Sanciangco, M., Cureton II, J.C., Zhang, F., Buser, T., Campbell, M.A., Ballesteros, J.A., **Roa-Varón, A.**, Willis, S., Borden, W.C., Rowley, T., Reneau, P.C., Hough D.J., Lu, G., Grande, T., Arratia, G. & Ortí, G. The Tree of Life and a New Classification of Bony Fishes. PLOS Currents Tree of Life. 2013 Apr 18.
- 8 Ross, W.S., Quattrini, A.M., **Roa-Varón, A.** & McClain, J.P. 2010. Species Composition and Distributions of Mesopelagic Fishes Over the Slope of the North-Central Gulf of Mexico. Deep Sea Research II: Tropical Studies in Oceanography. 57 (21-23): 1926- 1956
- 9 **Roa-Varón, A.** & Ortí, G. 2009. Phylogenetic Relationships among Families of Gadiformes (Teleostei, Paracanthopterygii) Based on Nuclear and Mitochondrial Data. Mol. Phylogen. Evol. 52: 688-704.
- 10 **Roa-Varón, A.**, Saavedra-Díaz, L.M., Acero, A.P. & Mejía, L.S. 2007. First records of fishes for the Colombian Caribbean, orders Myctophiformes, Polymixiiformes, Gadiformes, Ophidiiformes, and Lophiiformes. Bol. Invest Mar. Cost. 36: 181-207.
- 11 Saavedra-Díaz, L.M., **Roa-Varón, A.**, Acero, A.P. & Mejía, L.S. 2004. New Records of Fishes for the Colombian Caribbean slope orders Albuliformes, Anguilliformes, Osmeriformes, Stomiiformes, Ateleopodiformes, Aulopiformes, and Pleuronectiformes). Bol. Invest Mar. Cost. 33: 181-207.
- 12 **Roa-Varón, A.**, Acero, A., Mejía, L.S. & Saavedra, L.M. 2003. New Records of Fishes for the Colombian Caribbean slope of the orders Beryciformes, Zeiformes, Perciformes y Tetraodontiformes. Bol. Invest Mar. Cost. 32: 3-24.
- 13 Mejía, L.S., Acero, A., **Roa-Varón, A.** & Saavedra, L.M. 2001. Review of the fishes of the Genus *Synagrops* from the Tropical Western Atlantic (Perciformes: Acropomatidae). Caribbean Journal. 37 (3-4): 202-209.

Technical Reports

- 14 Ross, S.W., Demopoulos, A., Kellogg, C.A., Morrison, C.L., Nizinski, M.S., Ames, C.L., Casazza, T., Gualtieri, D., Kovacs, K., McClain, J.P., Quattrini, A.M., **Roa-Varón, A.** & Thaler, A.D. 2012. Deepwater Program: Studies of Gulf of Mexico lower continental slope communities related to chemosynthetic and hard substrate habitats: U.S. Geological Survey [Open-File Report 2012–1032](#), 301 p.
- 15 Ross, S.W., Quattrini, A.M., **Roa-Varón, A.** & McClain, J.P. 2009. Community Structure of Mesopelagic Fishes Over the Slope of the North-Central Gulf of Mexico. 2009. US Geological Survey Deepwater Program: Investigations of Chemosynthetic Communities on the Lower Continental Slope of the Gulf of Mexico
- 16 Ross, S.W., Quattrini, A.M., **Roa-Varón, A.** & McClain, J.P. 2009. Diets and Feeding Behavior of Midwater Fishes over Cold Seep Sites in the North-Central Gulf of Mexico. US Geological Survey Deep-water Program: Investigations of Chemosynthetic Communities on the Lower Continental Slope of the Gulf of Mexico
- 17 **Roa-Varón, A.** & Solano, O.D. Evaluation of the ecological impacts caused by the construction of Urrá I Hydroelectric dam on the fish community of the Sinú River. Trimestral reports to the Government (2001-2003).

PROFESSIONAL DEVELOPMENT WORKSHOPS

- 2019 **Genome Annotation Workshop.** National Museum of Natural History (NMNH), Smithsonian Institution. June 4-5. Washington, DC. USA.
- 2019 **Metabarcoding Workshop.** National Museum of Natural History (NMNH), Smithsonian Institution. March. 5-6. Washington, DC. USA.
- 2018 **Introductory Population Genomics: from Data to Inference.** Institut de Biologie Intégrative et des Systèmes (IBIS). Université Laval. November 12-16. Quebec City, Canada.
- 2017 **Basics of CT Data Acquisition, Visualization and Analysis.** High-Resolution X-ray CT Facility & DigiMorph.org. The University of Texas. July 9-11. Austin, TX. USA.
- 2017 **Bodega Applied Phylogenetics Workshop.** University of California, Davis. Bodega Marine Lab. March 11-18. Bodega Bay, California, USA.
- 2015 **Larval Fish Workshop.** Virginia Institute of Marine Science (VIMS). October 5-16. Gloucester Point, VA. USA.
- 2015 **Lab Training in Gene Capture of Single-Copy Genes as Molecular Markers for Phylogenomic Studies.** College of Fisheries and Life Science. Shanghai Ocean University. June 7- August 2. Pudong Xinqu, Shanghai. China.
- 2015 **Workshop on Biogeography.** Led by Lynne Parenti. Virginia Institute of Marine Science. February 2-6. Gloucester Point, VA. USA
- 2014 **Workshop on Molecular Evolution.** The Marine Biological Laboratory. July 27-Aug. 6. Woods Hole, MA. USA.
- 2014 **Next-generation sequencing for phylogenetics and phylogeography.** The National 2014 Evolutionary Synthesis Center (NESCent). July 14-20. Durham, NC. USA.
- 2014 **Symposium on Phylogenomics.** University of Texas and Society of Systematic Biologist (SSB). Evolution, June 19-20. Raleigh, NC. USA.
- 2013 **Marine Ecological & Environmental Genomics.** Station Biologique de Roscoff. June 3-14. Roscoff, France.
- 2011 **Comparative Genomics Workshop.** Smithsonian Institution National Museum of Natural History (NMNH). Oct. 3-7. Washington, DC. USA
- 2011 **Next Generation Sequencing: Transformative Technology for Biodiversity Science Workshop.** Smithsonian Institution NMNH. Apr. 18-20, 2011. Washington, DC. USA.
- 2005 **The Diversity of fishes.** Cornell University - Shoals Marine Laboratory. June 13-27, 2005. Appledore Island. USA.
- 2001 **Ecology of Neotropical Fishes.** Natural Science Institute - Instituto de Ciencias Naturales. Universidad Nacional de Colombia. July 26 – Aug. 2, 2001. Bogotá. Colombia.

NATURAL HISTORY COLLECTION EXPERIENCE

2001–2018 *Museum visits*: examination of type and non-type material of fishes deposited at: **CAS** California Academy of Sciences, San Francisco, USA; **MCZ**, Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA; **ICN-MHN**, Instituto de Ciencias Naturales, Museo de Historia Natural, Universidad Nacional de Colombia, Bogotá, Colombia; **MHNMC**- Makuriwa, Museo de Historia Natural Marina de Colombia – Makuriwa, Santa Marta, Colombia; **MNHN**, Musée National d'Historie Naturelle, Paris, France; **USNM**, National Museum of Natural History, Smithsonian Institution (USA); **VIMS** - Nunnally Ichthyology Collection, Virginia Institute of Marine Science, Gloucester Point, USA.

2002-2018 *Material examined through loans*: type and non-type material of fishes deposited at **AMS**, Australian Museum, Sydney, Australia; **ASIO**, Academia Sinica Institute of Oceanology, Qingdao, China; **BNHM**, Natural History Museum, London, UK; **BSKU**, Kochi University, Department of Biology, Faculty of Science, Kochi, Japan; **CAS**, California Academy of Sciences, San Francisco, USA; **CBM**, Natural History Museum and Institute, Chiba, Japan; **CSIRO**, Commonwealth Science & Industrial Research Organization, Hobart, Australia; **FLMNH**, Florida Museum of Natural History, Gainesville, USA; **ICM-CSIC** Institut de Ciències del Mar, Consejo Superior de Investigaciones Científicas, Barcelona, Spain; **MCZ**, Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA; **MNHN**, Musée National d'Historie Naturelle, Paris, France; **NMV**, Museum Victoria Ichthyology Collection, Melbourne, Australia; **PPSIO**, P. P. Shirshov Institute of Oceanology, Moscow, Russia; **SAIAB**, South African Institute for Aquatic Biodiversity, Grahamstown, South Africa; **SAM**, South African Museum, Cape Town, South Africa; **UF**, University of Florida, Florida State Museum, Gainesville, Florida, USA; **USNM**, National Museum of Natural History, Smithsonian Institution, Washington D.C., USA; **VIMS** - Nunnally Ichthyology Collection, Virginia Institute of Marine Science, Gloucester Point, USA; **ZSI**, Zoological Survey of India, Calcutta, India.

FRESHWATER EXPEDITIONS

1996 – 2003 Colombia-Brazil Several expeditions in the Amazon river including the Yahuaraca Lakes. Colombia: Magdalena River (La Serranía de las Quinchas, Ciénaga de Guarinocito); One-week monthly sampling for three years in the Sinú River and estuarine-lagoon system located at the Cispatá Bay.

RESEARCH CRUISES

R/V Cape Hatteras. Deep Coral Ecosystems off North Carolina. 10 days, ¹_{SEP}(2009)

R/V Seward Johnson. Diversity, Systematics, and Connectivity of Vulnerable Reef Ecosystems (DISCOVRE) of the Gulf of Mexico. 12 days. (2009)

R/V Nancy Foster. US Geological Survey Deep-water Program: Investigations of chemosynthetic communities of the Lower Continental Slope of the Gulf of Mexico. 10 days. (2008)

R/V Cape Hatteras. Chemosynthetic Communities on the Lower Continental Slope of the Gulf of Mexico. 21 days. (2007)

R/V Ancón. Macrofauna I Expedition. Colombian Caribbean slope. 10 days. (1999)

SELECTED PRESENTATIONS & POSTERS

- **Roa-Varón, A.** Challenges of Big Data Analyses Using Gadiform Fishes (Paracanthopterygii: Gadiformes) as a Model Clade. The George Washington University. October 3, 2018. Guest Speaker
- **Roa-Varón A., Li, C., Baldwin, C., Dikow, R., Ortí, G., Hilton, E.J.** A Phylogenomic Perspective on the Relationships of Gadiform Fishes (Paracanthopterygii: Gadiformes). Deep-Sea Biology Symposium. Monterey, CA. September 10-14. Oral presentation.
- **Roa-Varón A., Li, C. & Hilton, E.J.** Using Phylogenomics to Study the Interrelationships of Gadiformes. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Austin, TX. USA. July 12-16, 2017. Oral presentation.
- **Roa-Varón A., Wang, W., Li, C. & Hilton, E.J.** Phylogenetic Relationships within the Family Merlucciidae (Gadiformes) using Genome-Wide Protein Coding Genes. Joint Meeting of Ichthyologists and Herpetologists (JMIH). New Orleans, LA. USA. July 6-10, 2016. Oral presentation.
- Quattrini, A.M., **Roa-Varón A.**, Singer, R., Chaytor, J.D., & Demopoulos, A.W.J. Mesophotic and Deep-Sea Demersal Fish Assemblages on Rugged Hardbottoms of the Greater-Lesser Antilles Transition Zone.

Joint Meeting of Ichthyologists and Herpetologists (JMIH). New Orleans, LA. USA. July 6-10, 2016. Poster.

- **Roa-Varón A.**, McDowell, J. & Hilton, E. Back from the dead or alive and well all along? The Family Lyconidae (Gadiformes). Joint Meeting of Ichthyologists and Herpetologists (JMIH). Albuquerque, NM. USA. July 10-15, 2013. Poster.
- **Roa-Varón A.**, Ortí, G. & Hilton, E. Systematics of the Gadiformes: Past, Present and Future. ACICTIOS: XII Colombian Congress of Ichthyology and III Latin-American Ichthyologist meeting. Bogotá, Colombia. May 27-31, 2013. Oral Presentation.
- Ross, W.S., Quattrini, A.M., **Roa-Varón, A.** & McClain, J.P. Species Composition and Distribution of Mesopelagic Fishes Over the Slope of the North-Central Gulf of Mexico. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Portland, OR. USA. July 22-27, 2009. Oral presentation (AMQ).
- **Roa-Varón A.** & Ross, S.W. Diel vertical Distribution of the bristlemouths (Stomiiformes: Gonostomatidae: Cyclothone) in the Gulf of Mexico. Poster. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Portland, OR. USA. July 22-27, 2009. Poster.
- Ross, W.S., Quattrini, A.M., **Roa-Varón, A.** & McClain, J.P. Species Composition and Distribution of Mesopelagic Fishes Over the Slope of the North-Central Gulf of Mexico. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Portland, OR. USA. July 22-27, 2009. Oral presentation.
- Quattrini, A.M., Artabane, S.J., Ross, S.W., **Roa-Varón, A.** & McClain, J.P. Distribution of Anguilliform Leptocephali in the Gulf of Mexico, with preliminary data on stable isotopic composition. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Montreal, Canada, 23-28 July 2008. Poster.
- **Roa-Varón, A.** & Ortí, G. Gadiformes Phylogeny, a new perspective from nuclear and mitochondrial genes. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Saint Louis, Missouri. USA. July 11-16, 2007. Oral Presentation.
- **Roa-Varón A.** & Solano, O.D. Ecological monitoring of downstream fish communities in the Sinú River: before and after the onset of Urra I hydroelectric dam. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Norman, Oklahoma, USA. May 26-31, 2004. Poster.

PROFESSIONAL SOCIETIES

The American Society of Ichthyologists and Herpetologists (ASIH), Society of Systematic Biologists (SSB); Deep Sea Biology Society (DSBS); Society for Conservation Biology (SCB); National Museum of Natural History Senate of Scientists (NMNH-SOS).

LEADERSHIP & OUTREACH

- **Smithsonian Science How - What Makes Fish so Fishy?** Video Webinar - May 14, 2020. <https://naturalhistory.si.edu/node/11949>
- **National Geographic Reviewer** Research and Exploration (CRE) - Biodiversity Exploration and Discovery. 2020
- **Science Day** Key Elementary School - Spanish immersion. What makes a fish a fish? Interactive activity for 210 kids in first and second grade. January 24, 2020.
- **Committee for Diversity, Equity, Inclusion & Belonging** American Society for Ichthyologist and Herpetologist (ASIH) 2019 - current
- **National Geographic Reviewer** I am part of the expert panel for the National Geographic Kids Animals reviewing the chapter on fish. July-December 2019.
- **Fish Module Trainer - Q?rius “Collections Zone Deep Dive”** I was responsible for the fish training module with the teen volunteers that are greeting and orienting visitors from around the world to Q?rius, the Coralyn W. Whitney Science Education Center at the National Museum of Natural History. This program also allows teens to connect with peers who share similar interests, learn more about the research that goes on behind-the-scenes in the Museum, and gain valuable public speaking and leadership skills. June 2019.
- **Scientific Expert in the IUCN Red List Workshop.** Deep Bony Fishes of the Atlantic and Gulf of Mexico. Veracruz, Mexico October 8 to 12, 2018.
- **Journal Reviewer:** Zootaxa; Atoll Research Bulletin, Smithsonian Institution; Bulletin of Coastal and Marine Research (INVEMAR).

- **Charles Darwin Foundation Scientist Ashore** - Identification of the Gadiformes fishes based on images from frame-grabs of video transects that were done on the E/V *Nautilus* expedition in 2015. The Ocean Exploration Trust explored seamounts and deep lava flows (200 and 3,200 m depths) in the Seamounts of the Galapagos Marine Reserve.
- ***Okeanos Explorer* Scientist Ashore**: Océano Profundo 2015: Exploring Puerto Rico's Seamounts, Trenches, and Troughs - Explored the deep-sea ecosystems and seafloor in the vicinity of Puerto Rico and the U.S. Virgin Islands.
- **Blog contributor for the NOAA *Okeanos Explorer*** Who are the Gadiformes and Why Should We Study Them? (English/Spanish)
<http://oceanexplorer.noaa.gov/okeanos/explorations/ex1502/logs/apr25/apr25.html>
- **VIMS Featured Student** http://www.vims.edu/features/people/roavaron_feature.php
- **World Minded Featured People**
https://issuu.com/revescenter/docs/webfinalworld_minded_spring_2016?e=16871623/34400128
- **Scientific Core Contributor to the Tree of Life Web Project.**
- **International Student Representative** VIMS and W&M College (2012 - 2016).
- **Makuriwa Museo de Historia Natural Marina de Colombia (INVEMAR)** – I organized workshops with the local communities in the Sinú River at the Cispatá Bay, Colombia: (i) Awareness of sustainable management of their fisheries; (ii) Exchange of fish knowledge with local fishermen: integrates scientific data and local knowledge around biology, ecology, and fishing activity and (iii) engaging the next generation (children 5 to 10 years old).