Veronica Ruiz Xomchuk

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Education

Ph.D. Oceanography, Texas A&M University, 2014–2019 (expected).

Dissertation: Scales of spatial and temporal variability of bottom hypoxia in the Texas Louisiana Shelf.

Committee: Robert Hetland (chair), Steve DiMarco, Piers Chapman, James Kaihatu.

M.Sc. Marine and Lacustrine Sciences, Gent University, Belgium, 2002–2003.

Thesis: Seasonal variation of surf zone hyperbenthos associated with penaeid shrimp larvae at Ecuadorian sandy beaches.

Committee: Magda Vincx (chair), Maria del Pilar Cornejo (co-chair), Nancy Fockedey.

B.Sc. Oceanography, Escuela Superior Politecnica del Litoral, Guayaquil, Ecuador, 1997–2002.

Thesis: Preliminary study on the temporal variation of intertidal hyperbenthos in a sandy beach in Guayas Province (CENAIM, San Pedro, Ecuador).

Research Experience

Research Assistant, Department of Oceanography, Texas A&M University, 2014–present.

Researcher, Oceanographic Research Institute of the Ecuadorian Navy, Guayaquil, Ecuador, 2012 – 2014.

Researcher, Center for Water and Sustainable Development; Guayaquil, Ecuador, 2000 – 2010.

Research Interests

Submesoscale processes; Coastal mixing processes; Interactions between physics and biology in the coastal environment; Theory and numerical simulation of flow in coastal environments; Computational Oceanography.

Research

Publications

Peer-reviewed

Ruiz-Xomchuk, V. and R. D. Hetland, (in prep). Submesoscale processes affecting bottom oxygen distribution during seasonal hypoxia in the Texas Louisiana shelf.

Ruiz-Xomchuk, V. , R. D. Hetland and S. F. DiMarco, (in prep). Dividing regions by submesoscale processes to derive hypoxia metrics in the nGOM.

Ruiz-Xomchuk, V. , R. D. Hetland (in prep). Relating patchiness in hypoxia to interannual variability. What can we learn from a simplified model?

Zhang, W., R. D. Hetland, **V. Ruiz-Xomchuk**, S. F. DiMarco, and H. Wu (submited to Marine Pollution Bulletin). Stratification duration and the formation of bottom hypoxia over the Texas-Louisiana Shelf.

Dominguez L, **V. Ruiz-Xomchuk** and N. Fockedey (2004). Hyperbenthos in Ecuador: 4 years of research. *Revista Tecnologica de la ESPOL*, 17 (1), 124-132 (in Spanish with English abstract).

Ruiz-Xomchuk, V. (2004). Seasonal variation of surf zone hyperbenthos associated with penaeid shrimp larvae at Ecuadorian sandy beaches. MSc Thesis. University of Gent: Gent. 24 pp.

Other Products

Ruiz-Xomchuk, V. , L. Dominguez, J. Marin and S. Miño (2005). "Guide of the intertidal fauna of the Sandy beaches of continental Ecuador," An Outreach VLIR-ESPOL publication. ISBN: 9978-310-12-6.

Guartatanga, S. and **V. Ruiz-Xomchuk** (2002). "Benthos sampling: protocol and procedures" A VLIR-ESPOL publication, Laboratory Manual.

Conference and Seminar Presentations

Ruiz-Xomchuk, V. and R. D. Hetland, "Is bottom hypoxia in the TX-LA shelf persistent?", Gordon Research Conference: Coastal Ocean Dynamics, Southern New Hampshire University in Manchester, NH, June 16-21, 2019. (poster)

Ruiz-Xomchuk, V. and R. D. Hetland, "Using budget analysis to understand variability in modeled bottom hypoxia of the Texas Louisiana shelf", Gulf of Mexico Oil Spill & Ecosystem Science Conference, February 7, 2019. [Oral presentation]

Ruiz-Xomchuk, V. and R. D. Hetland, "Using a budget analysis to understand variability in the bottom hypoxia of the Texas-Louisiana Shelf," Physics of Estuaries and Coastal Seas Meeting 2018, Galveston, TX, October 14–19, 2018. (Oral presentation)

Ruiz-Xomchuk, V. and R. D. Hetland, "Variability in Coastal Hypoxia in the Texas-Louisiana shelf," Communicating Ocean Science Poster Session, Texas A&M University, May 7, 2018.

Ruiz-Xomchuk, V. and R. D. Hetland, "Tracing Variability in the Budget Balance of Bottom Water Dissolved Oxygen In the Texas-Louisiana Shelf," AGU Spring Virtual Poster Showcase, April, 2018. [Poster]

Ruiz-Xomchuk, V. and R. D. Hetland, "Oxygen budget estimation from the advection-diffusion equation in a high resolution model of the Texas-Louisiana Shelf," Abstract OC44A-0496, presented at 2018 Ocean Sciences Meeting, Portland, OR, February 12–16, 2018. [Link]

Ruiz-Xomchuk, V. and R. D. Hetland, "Can we link variability of bottom hypoxia to baroclinic instabilities on the Texas-Louisiana Shelf?," Gordon Research Conference: Coastal Ocean Modeling, University of New England, June 11–16, 2017. (poster)

Hetland, R. D., **V. Ruiz-Xomchuk**, S. DiMarco, K. Fennel, and W. Zhang. "Modulation of bottom hypoxia by submesoscale shelf eddies in the Northern Gulf of Mexico," Ocean Sciences Meeting, New Orleans, LA, February 21–26, 2016. (poster)

Selected Conferences and Workshops Attended

COAWST Model Training, Woods Hole, MA, February 25–28, 2019.

SciPy Conference and Tutorials, Austin, TX, July, 2015, & 2017-2019.

Special HPC Seminar and Workshop on Cloud Computing, Texas A&M University, March 21, 2017.

TUFTE Presenting Data and Information Workshop , Houston, TX, October 12, 2016.

Teaching

Graduate Assistant Lecturer, Introduction to Oceanography (OCNG 251), Texas A&M University (TAMU), Spring 2017.

Graduate Teaching Assistant, Oceanography Lab (OCNG 252), TAMU, Spring 2016, Summer I and II 2016, Fall 2016.

Lecturer, Multivariate Statistics for Environmental Engineers (UMAT301), Universidad de Especialidades Espiritu Santo (UEES); Guayaquil, Ecuador. Winter 2011, Intensive I 2014. (Spanish)

Lecturer, Introduction to Oceanography (UCEC261), UEES; Guayaquil, Ecuador. Winter 2013. (Spanish)

Lecturer, Environmental Statistics (UMAT238), UEES; Guayaquil, Ecuador. Winter 2013, Winter 2014. (Spanish)

Lecturer, Marine Fauna Management (UAMB354), UEES; Guayaquil, Ecuador. Summer 2013. (Spanish)

Field Work

Texas continental shelf: R/V Manta, Glider rescue mission, June 22, 2018.

Galveston Bay: R/V Trident, NSF RAPID, October 6–7, 2017.

Texas continental shelf: R/V Point Sur, NSF RAPID, September 27–29, 2017.

Continental Ecuador to Galapagos. Orion, Ecuadorian regional cruise, summer 2015.

Intensive benthos sampling in sandy beach surf zones in Ecuador. Developing of sampling and safety protocols. 1999-2010.

Advisory and Coordination

Graduate Mentor for the Oceanography REU program, Texas A&M University, Summer 2018.

Ecuadorian Senior representative on the Tsunami Warning System Workshop. Japannese-Ecuadorian collaboration initiative. JICA. Tokyo, Japan. July 2014.

Research Advisor of the Ecuadorian Commission at the XXVII Antarctic Treaty Consultative Meeting. RTSA. Brasilia, Brazil. May, 2014.

Honors & Awards

Robert O. Reid Oceanography Fellowship from the College of Geosciences, Texas A&M University, 2019.

GOMOSES Student Presenter Award, Gulf of Mexico University Research Collaborative and Harte Research Institute, February 2019.

Donald & Melba Ross Graduate Scholarship from the College of Geosciences, Texas A&M University, 2018.

Graduate Showcase Awardee (2nd place), Spring 2018 Virtual Poster Showcase, AGU. 2018

Wormuth Memorial Award for Graduate Student Teaching, Texas A&M University, 2017.

Ralph Rayburn Texas Sea Grant Scholarship, 2016.

David W. McGrail Oceanography Scolarship, Texas A&M University, 2015.

VLIR-ESPOL Scholarship, 2012.

Service

Peer judge for AGU Virtual Poster Showcase, 2018.

Outreach volunteer, Oceanography Department, Texas A&M University. Spring 2017, Summer 2017.

Invited speaker in "Tsunami awareness" seminar for local population and stakeholders in Playas Villamil Ecuador, organized by the Red Cross- Ecuador. December 2017, December 2018.

Volunteer on National Seafloor SCUBA Cleaning Events in Ecuador. June 2012. May 2013.

Research Volunteer in the Tortuga Program for the ONG Equilibrio Azul in Puerto Lopez, Ecuador. Winter, 2011.

Skills

Ocean Modeling

Used ROMS ocean modeling code for several applications, worked in "offline" implementation of the code for biological modules; experience with COAWST and GOTM modeling.

Computing and Programming Languages

Proficient in Python; experience in Fortran and Matlab; proficient in LaTeX; extensive experience with Linux system administration, using a cluster, and shell scripting. Experience with MPI and OpenMP.

Certifications

CPR, First Aid, SNSI-Advanced Open Water Diver.

Languages

Spanish, English and Russian.

References

Dr. Robert Hetland

Professor, Department of Oceanography, College of Geoscience, Texas A&M University

Website: https://ocean.tamu.edu/people/faculty/hetlandrobert.html

Email: hetland@tamu.edu

Doctoral Advisor, Texas A&M University, 2014–2019

Dr. Chrissy Stover Wiederwohl

Instructional Associate Professor, Department of Oceanography, College of Geoscience, Texas A&M University

Website: https://ocean.tamu.edu/people/faculty/wiederwohlchrissystover.html

Email: chrissyw@tamu.edu

Teaching Assistant Supervisor, Texas A&M University, 2016–2017

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