

Etige Nishchitha Sandeepana Silva

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Education

Ph.D. in Earth and Environment

In Progress

Department of Earth and Environment, Boston University

Advisor: Professor Bruce Anderson

MS in Marine Science

August 2019

School for Marine Science and Technology, University of Massachusetts Dartmouth

Advisor: Professor Avijit Gangopadhyay

BSc in Aquatic Resources Technology (Second Class Upper Division)

October 2015

Uva Wellassa University of Sri Lanka

Research Interest

Investigating coupled ocean-atmosphere interactions and their long-term influence on the marine environment and biosphere.

Research Experience

Doctoral Candidate

2019 – Present

Department of Earth and Environment, Boston University

- Investigating links between Kuroshio Current Extension variability and Pacific Decadal Precession.

Graduate Research Assistant

2018 - 2019

Oceanographic Modeling and Analysis Laboratory, Department of Estuarine and Ocean Science, School for Marine Science and Technology, University of Massachusetts Dartmouth

- Conducted a census and developed a geo-coded database of the Gulf Stream's Warm Core Rings.
- Investigated the long-term variability, regimes, and survival of the Gulf Stream's Warm Core Rings.

Consultant

2017

International Union for Conservation of Nature (IUCN), Sri Lanka Office

- Developed and supplied inputs for the determination of a new marine protected area in the Gulf of Mannar, Indian Ocean.
- Investigated the willingness of fishing communities for the conservation of Dugong and Seagrass in the Gulf of Mannar and Palk Bay, Indian Ocean.

Intern

2015 - 2017

International Water Management Institute (IWMI), Sri Lanka

- Analyzed hydrological data for multiple climate change scenarios to understand the hydrological impacts of climate change in the Tana River basin, Kenya.
- Studied the potentials of utilizing groundwater and surface water conjunctively for irrigation in North-Central Sri Lanka.

- Processed and maintained a geo-coded agro-well database for North-Central Sri Lanka to determine potential cropping intensities.
- Developed a repository of case studies to utilize as an input for a policy model established for the management of reservoirs in Kazakhstan.

Undergraduate Research

2015

Uva Wellassa University

- Thesis research on effects of climate change driven sea-level rise on a unique islet complex at a sea-lagoon interphase on the west coast of Sri Lanka.

Volunteer Researcher

2013 - 2017

Water Resources Science and Technology, Sri Lanka

- Studied the impacts of small-scale hydropower generation on mountain streams of Sri Lanka.
- Conducted a case study on small-scale hydropower generation impacts on mountain streams.

Teaching Experience

Senior Teaching Fellow

2019 - 2021

Department of Earth and Environment, Boston University

- **Instructor:** Introduction to Climate and Earth System Science EE107

Teaching Fellow

2019 - 2021

Department of Earth and Environment, Boston University

- Environmental Change and Sustainability EE100
- Natural Environments: The Atmosphere EE101
- Introduction to Climate and Earth System Science EE107

Teaching Assistant

2018 - 2019

School for Marine Science and Technology, University of Massachusetts Dartmouth

- Introduction to Climate Sciences MAR115

Publications

Journal Articles

E.N.S. Silva, Bruce T Anderson. Influence of Kuroshio Extension Variability on the North Pacific Atmosphere and Pacific Decadal Precession, 21 March 2022, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-1451566/v1>]

Silver, A., Gangopadhyay, A., Gawarkiewicz, G., **Silva, E.N.S.** and Clark, J. 2021. **Interannual and seasonal asymmetries in Gulf Stream Ring Formations from 1980 to 2019**. Scientific Reports, 11(1), pp.1-7. <https://doi.org/10.1038/s41598-021-81827-y>

Silva, E.N.S., A. Gangopadhyay, G. Fay, A., M. Welandawe, G. Gawarkiewicz, A. M. Silver, and J. Clark, 2020: **A survival analysis of the warm core rings of the Gulf Stream** Journal of Geophysical Research: Oceans, 125(10), p.e2020JC016507. <https://doi.org/10.1029/2020JC016507>

Gangopadhyay, A., Gawarkiewicz, G., **Silva, E. N. S.**, Silver, A. M., Monim, M., & Clark, J. 2020. **A census of the warm-core rings of the Gulf Stream: 1980–2017**. Journal of Geophysical Research: Oceans, 125, e2019JC016033. <https://doi.org/10.1029/2019JC016033>

Gangopadhyay, A., Gawarkiewicz, G., **Silva, E. N. S.**, Monim, M., & Clark, J. 2019. **An observed regime shift in the formation of Warm core rings from the Gulf Stream**. Scientific Reports, 9(1). doi:10.1038/s41598-019-48661-9

Muthuwatta L., Sood A., McCartney M., **Silva E.N.S.**, Opere A. 2018. **Understanding the impacts of climate change in the Tana river basin, Kenya**. Proc IAHS 379:37-42. <https://doi.org/10.5194/piahs-379-37-2018>

Silva E.I.L. and **Silva E.N.S.** 2017. **Mini-hydro, an injurious novel threat to highland forest ecosystems of Sri Lanka**. The Sri Lanka Forester 38:67-73.

Silva E.I.L., Manthrithilake H., Pitigala D., **Silva E.N.S.** 2014. **Environmental flow in Sri Lanka: Ancient anicuts versus modern dams**. Sri Lanka Journal of Aquatic Sciences 19:3-14. doi: 10.4038/slj.v19i0.7447

Silva E.I.L., Rott E., Thumpela I., Athukorala N., **Silva E.N.S.** 2013. **Species composition and relative dominance of reservoir phytoplankton in Sri Lanka: Indicators of environmental quality**. International Journal of Biological Science and Engineering 4(4):92-102.

Conference Proceedings

Silva, E.N.S. & Anderson, B.T. 2022, March. **Influence of Kuroshio Extension Variations on the Formation of Marine Heatwaves in the Gulf of Alaska** in Ocean Science Meeting 2022. AGU.

Etige, N.S. & Anderson, B. 2020, February. **What Scale of Kuroshio Extension Variability Influences the Downstream Atmosphere that Links with the Pacific Decadal Precession?** in AGU Fall Meeting 2021. AGU.

Silver, A., Gangopadhyay, A., **Etige, N.S.**, Gawarkiewicz, G., Bisagni, J.J., Monim, M. and Clark, J., 2020, February. **A Census of Gulf Stream Warm and Cold Core Rings (1980-2017)**. in Ocean Sciences Meeting 2020. AGU.

Silva E.N.S., Rajasuriya A. and Sosai S. 2017. **Testing attitudes of fishers towards conservation; a snapshot**. Proceedings of third national symposium on marine environment; 10/17/2017; Colombo, Sri Lanka. Sri Lanka: Marine Environment Protection Authority, Sri Lanka. 37-38 p.

Silva E.N.S., Liyanage N.P.P. and Jayamanne S.C. 2016. **Possible effects of climate change driven sea level rise on small islet complex of Negombo lagoon sea entrance with respect to mangrove floral community and fisheries**. Proceedings of 6th research symposium of Uva Wellassa University - Towards emerging trends in value addition; 01/28/2016 - 01/28/2016; Uva Wellassa University. Sri Lanka: Uva Wellassa University. 131 p.

Silva E.N.S., Liyanage N.P.P., Jayamanne S.C. and Silva E.I.L. 2016. **The fate of Negombo lagoon sea entrance in the face of climate change driven sea-level rise**. International workshop on climate change and anthropogenic activities: Impact on coastal development and management; 10/28/2016-10/29/2016; Colombo, Sri Lanka. Sri Lanka: University of Colombo. 61-63 p.

Silva E.I.L. and **Silva E.N.S.** 2016. **Mini-hydro, an injurious novel threat to highland forest ecosystems of Sri Lanka**. Proceedings of international research symposium on valuation of forest ecosystems and their services; 10/18/2016; Colombo, Sri Lanka. Sri Lanka: UN-REDD. 47 p.

Silva E.I.L., Jayawardhana R.A.S.N., **Silva E.N.S.** and Liyanage N.P.P. 2016. **The effects of escalating small hydropower development on hill stream fish fauna endemic to Sri Lanka.** Asia 2016 - International conference on water resources and hydropower development in Asia; 03/01/2016-03/03/2016; Vientiane, Laos.

Silva E.I.L., Jayawardhana R.A.S.N., Liyanage N.P.P. and **Silva E.N.S.** 2015. **Effects of construction and operation of mini hydropower plants on fish fauna endemic to Sri Lanka - A case study on Kelani river basin.** Symposium proceedings of the water professionals' day - Water resources research in Sri Lanka; 10/01/2015; Post Graduate Institute of Agriculture, University of Peradeniya. Sri Lanka: Geo-Informatics Society of Sri Lanka. 45-55 p.

Books

Silva E.I.L. and **Silva E.N.S.** 2016. **Handbook on small hydropower development and environment: A case study on Sri Lanka.** 1st ed. Colombo, Sri Lanka: Water Resources Science and Technology.

Reports

Sood A., Muthuwatta L., **Silva N.S.**, McCartney M. 2017. **Understanding the hydrological impacts of climate change in the Tana river basin, Kenya.** Colombo Sri Lanka: International Water Management Institute (IWMI). Report IWMI Working Paper 178. 40 p.

Magazine Articles

Silva E.N.S., Liyanage N.P.P., Jayamanne S.C. 2016. **Negombo lagoon sea entrance - vulnerable to climate change?** Neela Haritha - the Climate Change Magazine of Sri Lanka 1:52-53.

Invited Talks

"Thirty-eight Years of Gulf Stream's Warm Core Rings: Variability, Regimes, and Survival" Shelf and Slope Processes Informal Series, Woods Hole Oceanographic Institute, Woods Hole MA. Jul 17, 2019.

"MV X-Press Pearl: Beyond the Disaster" Sri Lankan Twitter Space Discussion: Invited speaker. Jun 04, 2021.

"Ocean Currents and Ocean Pollution" World Ocean Day Webinar: Panelist, Aqua Club of Uva Wellassa University, Sri Lanka. Jun 08, 2021.

"Climate Change: Livestock and Fisheries & Aquaculture Sector Vulnerability and Adaptation" Online Workshop Resource Person. Department of Animal Science, Uva Wellassa University, Sri Lanka. Dec 09, 2021.

"Kuroshio Extension's Role on Influencing Downstream Atmosphere & the Northeast Pacific Marine Environment" Invited talk at University of Massachusetts Dartmouth's School for Marine Science & Technology, New Bedford, Massachusetts. Sep 22, 2022.

Awards

Warren McLeod Summer Fellowship in Marine Science
Boston University Marine Program

Summer 2022

Graduate Summer Fellow

Summer 2021

The Frederick S. Pardee Center for the Study of the Longer-Range Future – Boston University

Reviewer

Journal of Geophysical Research: Oceans

2021

Work Experience

Senior Teaching Fellow / Teaching Fellow

September 2019 – Present

Department of Earth and Environment, Boston University

Graduate Research Assistant

January 2018 – August 2019

Oceanographic Modeling and Analysis Laboratory, Department of Estuarine and Ocean Science, School for Marine Science and Technology, University of Massachusetts Dartmouth

Intern / Consultant

January 2017 – August 2017

International Union for Conservation of Nature (IUCN), Sri Lanka Office

Intern

October 2015- December 2016

International Water Management Institute (IWMI), Sri Lanka

Technical Skills

- Programming languages: MATLAB, Python, R.
- Software packages: SPSS, Minitab, ArcGIS, QGIS, LaTeX.
- Languages: English (fluent), Sinhala (fluent), Tamil (basic)

Workshops, Training, and Conferences

Ocean Science Meeting 2022, Online, Feb 24 – Mar 4, 2022.

AGU Fall Meeting 2021, New Orleans, LA. Dec 13 - Dec17, 2021.

UMass Intercampus Marine Science Research Symposium, School for Marine Science and Technology, UMass Dartmouth, New Bedford MA. Apr 04, 2019.

NOAA Coast Watch East Coast Satellite Data Training Class, University of Rhode Island, Narragansett Bay Campus, Narragansett RI. Jul 30 - Aug 1, 2018.

International Workshop on Climate Change and Anthropogenic Activities: Impact on Coastal Development and Management, Colombo, Sri Lanka. Oct 28, 2016.

International Research Symposium on Valuation of Forest Ecosystems and their Services, Colombo, Sri Lanka. Oct 18, 2016.

Awareness Program on Hill-stream Landscape of Sri Lanka, Post Graduate Institute of Agriculture, University of Peradeniya, Sri Lanka. May 27, 2016.

Two-day Training Workshop on "Stream Ecology & Environmental Flow, Kotmale International Training Institute, Sri Lanka. Mar 9 - Mar 10, 2016.

6th Research Symposium of Uva Wellassa University: Towards Emerging Trends in Value Addition; Environmental Science Track, Uva Wellasa University, Sri Lanka. Jan 28, 2016.

Aqua Forum 2015: Blue Revolution; Challenging New Frontiers through Value Addition, Uva Wellassa University, Sri Lanka. Dec 11, 2015.

Seminar on Length Based Spawning Potential - A new approach to assess and manage data poor fisheries, National Aquatic Resources Research & Development Agency, Sri Lanka. Aug 11, 2015.

SLAFAR Pre-symposium workshop on Monitoring Water Quality for Safe Drinking Water, University of Kelaniya, Sri Lanka. May 16, 2015.

Services and Other Experience

Member	2020 - 2021
<i>Boston University Earth and Environment Diversity, Equity, and Inclusion Steering Committee</i>	
Member	2020 - Present
<i>Boston University Earth and Environment International Student Committee of Graduate Student Association</i>	
Member	2018 - Present
<i>American Geophysical Union</i>	
Student Representative	May 2018 – May 2019
<i>SMAST Graduate Student Association</i>	
<i>Facilitator to conduct science demonstrations to Massachusetts middle school students</i>	
Grantee Representative	July 2015 – July 2016
<i>“Escalating Small Hydropower Development and Aquatic Biodiversity of Mountain Streams in Sri Lanka”, a grant awarded by Asia Pacific Network for Global Change Research</i>	
Coordinator and Translator	January 2016
<i>For an international student group from Johns Hopkins University, USA for a one week during a case study conducted in Negombo Lagoon</i>	
Founder President	2013-2014
<i>Aqua Club of Uva Wellassa University, Sri Lanka</i>	
Faculty Board Student Representative	2013-2014
<i>Faculty of Animal Science and Export Agriculture, Uva Wellassa University, Sri Lanka</i>	
Degree Program Student Representative	2013-2014
<i>Aquatic Resources Technology Degree Program, Uva Wellassa University, Sri Lanka</i>	
Managing Director (Volunteer)	January 2013 – Present
<i>Water Resources Science and Technology, a Sri Lankan organization conducting research and dissemination activities on water resources of Sri Lanka</i>	

References

Bruce Anderson, Professor

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Boston University
(617) 353-4807, brucea@bu.edu

Avijit Gangopadhyay, Professor of Oceanography

School for Marine Science and Technology
University of Massachusetts Dartmouth
(508) 910-6330, avijit.gangopadhyay@umassd.edu

Glen Gawarkiewicz, Senior Scientist

Physical Oceanography
Woods Hole Oceanographic Institution
(508) 289-2913, ggawarkiewicz@whoi.edu