Archi Howlader

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Profile Links: UMCES
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Education

- **University of Maryland** — United States
  Master of Science in Marine Estuarine Environmental Sciences — *November, 2022*
  Foundation: Earth and Ocean Systems

- **University of Dhaka** — Dhaka, Bangladesh
  Bachelor of Science in Botany — *March, 2018*

Work Experience

Engineering Tech, U.S. Geological Survey, New York Water Science Center — January, 2023- Current
(On Contract, Akima Systems Engineering LLC)

- Understanding the impact of compound flooding rainfall, groundwater, and storm surge relationships using statistical approaches
- Analyzing time series and geospatial/geophysical data and conducting multivariate analysis for compound flooding
- Using Coupled-Ocean-Atmosphere-Wave-Sediment Transport Modeling System (COAWST) model to predict salinity of Delaware Bay

Research Intern, Woods Hole Coastal and Marine Science Center, U.S. Geological Survey — May - Nov 2022
(Funded by National Science Foundation)

- Compared salinity prediction from Coupled-Ocean-Atmosphere-Wave-Sediment Transport Modeling System (COAWST) with empirical model
- Compiled model forcing data and ran COAWST on a supercomputer
- Managed model data output on a high performance computing (HPC) system.

Graduate Research Assistant, University of Maryland Center for Environmental Science — Aug 2019- Dec 2022

- Created non linear regression model to predict salinity at sampling stations using long term observational datasets
- Organized, quality controlled, reviewed data and conducted time series and regression analyses and evaluated model performance using quantitative skill assessments.
- Interpreted data and presented detailed reports, developing API to provide real time salinity prediction data

Research Intern, Bangladesh Council of Scientific and Industrial Research — April 2019- July 2019

- Maintained algal culture and assisted managing and coordinating the biological research division Program
- Applied quadrat method to determine frequency density and abundance of different species of plant community

Research Intern, International Centre for Diarrhoeal Disease Research — January 2019- March 2019

- Isolated, cultivated and characterized different microorganisms
- Collected data from field surveys and conducted data analyses
- Gave seminars and demonstrations to people from remote areas

Research Intern, Research, Training and Management International — July 2018- December 2018

- Worked on a United Nations Children's Fund project about Rohingya refugees of Bangladesh
- Collected and analyzed data, designed and performed experiments with Completely Random, Randomized Block, and Latin Square designs, and conducted Chi-square test

Publications

- Howlader, A. (2022) Prediction of the salinity history of oysters in Delaware Bay using observing systems data and nonlinear regression. MS Thesis, University of Maryland, College Park. College Park, MD. 57 pp.

Articles In Review/Revision

- Howlader, A.,E. North, D. Munroe, M.P. Hare Hindcasting bottom salinity at sampling stations in Delaware Bay: using observing systems data and nonlinear regression with application to oysters

Articles In Preparation:

- Howlader, A. ,S. Cook, E. North. Comparison of 3D hydrodynamic and empirical models for calculating the salinity exposure of oysters in Delaware Bay
- Robin Glas, Rob Welk, Liv Herdman, Salme Cook, Kris Masterson, Archi Howlader. Assessment of compound flood risk from the combined effects of rainfall, storm surge, and groundwater flooding

Oral Presentation

- Howlader, A. (presenter),S. Cook, E. North. Comparison of 3D hydrodynamic and empirical models for calculating the salinity exposure of oysters in Delaware Bay. AGU Fall meeting, 2022.
- Howlader, A. (presenter),S. Cook, E. North. Comparison of 3D hydrodynamic and empirical models for calculating the salinity exposure of oysters in Delaware Bay. Coastal Ocean Fluid Dynamics Laboratory (COFDL), 2022.
- Howlader, A. (presenter), E. North, D. Munroe, M.P. Hare. Prediction of the salinity history of oysters in Delaware Bay using observing systems data and nonlinear regression. Ocean Science Meeting, March 2022, virtual oral.
- Howlader, A. (presenter), E. North, D. Munroe, M.P. Hare. Prediction of the salinity history of oysters in Delaware Bay. Coastal and Estuarine Research Federation, Nov. 2021, virtual oral.
- Howlader, A. (presenter), E. North, D. Munroe, M.P. Hare. Prediction of the salinity history of oysters in Delaware Bay. Delaware Estuary Science and Environmental Summit, March 2021, virtual oral.
- Howlader, A. (presenter), E. North, D. Munroe, M.P. Hare. Prediction of the salinity history of oysters in Delaware Bay. Horn Point Lab student seminar, Feb. 2021, virtual oral.

Computer Skills

- **Programming Languages:** R, Matlab, Python
- **Numerical Analysis:** SPSS, SQL, Microsoft Excel
- **Web Programming:** HTML, PHP
- **Document Preparation Systems:** LaTex, Microsoft Office applications,Google's Collaboration Suite
- **GIS software:** QGIS
- **Animation Tools:** Adobe Animate, Krita, Adobe illustrator
- **Operating Systems:** Microsoft Windows operating system, Linux

Awards

- NSF Research Internship Supplemental Funding, PI: Dr. Elizabeth North($52000)   Summer 2022
- Horn Point Laboratory Travel Award($355)   Spring 2022
- Coastal and Estuarine Research Federation 2021 Rising TIDES($800)   2021
- Horn Point Laboratory Fellowship Award ($24000)   August 2019-August 2020