Pritam Karmakar Rony

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ABOUT ME

I am a Civil and Environmental Engineer with a strong foundation in water resources, environmental modeling, and laboratory analysis. Currently pursuing my M.S. in Environmental Engineering at Texas A&M University - Kingsville, I bring hands-on experience in hydrodynamic and water quality modeling using Delft3D, HEC-RAS, and ArcGIS Pro. My expertise extends to the analysis of nutrients and heavy metals in water, suspended sediments, and soil samples, utilizing techniques such as spectrophotometry and IC. I am proficient in Python for environmental data analysis, including time-series forecasting, statistical modeling, and extraction of tidal constituents. My work has involved integrated GIS-based spatial analysis to assess land use impacts on water quality in coastal systems, particularly the Nueces River Basin and Corpus Christi Bay. I have also contributed to ongoing research efforts and journal publications related to sediment transport and water quality. With a keen interest in sustainable environmental solutions, I am committed to combining technical knowledge with digital tools to support climate resilience and ecosystem protection. I excel in collaborative research environments and am actively seeking opportunities to apply my skills in environmental consultancy, research, or doctoral studies.

WORK EXPERIENCE

TEXAS A&M UNIVERSITY - KINGSVILLE – KINGSVILLE, TEXAS, UNITED STATES
GRADUATE RESEARCH ASSISTANT – ENVIRONMENTAL ENGINEERING – 28 APR 2024 – CURRENT

1. Collected and analyzed water and sediment samples for nutrients (nitrate, ammonium), heavy metals (e.g., lead, zinc, iron), and performed sieve analysis for particle size distribution
2. Performed statistical analysis and time series forecasting using Python and Statistical tools
3. Utilized ArcGIS Pro for spatial analysis and mapping land use impacts on water quality
4. Conducted hydrodynamic and water quality modeling using Delft3D and HEC-RAS for the Nueces River Basin and Corpus Christi Bay
5. Supported manuscript preparation for journal publication on sediment and nutrient dynamics
6. Collaborated in interdisciplinary research under the NRT TREAWS program focusing on climate resilience and water management in South Texas

CENTER FOR ENVIRONMENTAL AND GEOGRAPHIC INFORMATION SERVICES (CEGIS) – DHAKA, BANGLADESH
RESEARCH CONSULTANT – 1 JUN 2023 – 15 MAY 2024

1. Conducted hydrodynamic modeling of river systems using HEC-RAS (1D/2D) and Delft3D
2. Evaluated the impact of dredging on the Surma River's flow dynamics and sediment transport
3. Performed hydrologic and hydraulic analysis for river, delta, and coastal morphology projects
4. Participated in statistical frequency analysis of flood and flow data using specialized software
5. Contributed to the development of advanced flood forecasting systems and GIS-based environmental assessments
6. Engaged in field data collection, result interpretation, and preparation of technical reports and publications

SHAHJALAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, SYLHET, BANGLADESH – SYLHET, BANGLADESH
RESEARCH ASSISTANT – CIVIL AND ENVIRONMENTAL ENGINEERING – 1 APR 2021 – 31 MAY 2023

1. Have done 1D and 2D models in HEC-RAS
2. Have done 3D model in Delft3d
3. Perform different Hydrodynamic Analysis
4. Have done Frequency Analysis Study using Statistical Software
5. Checked the Impact of Dredging in Surma River

EDUCATION

28MAY2024–CURRENT Kingsville,Texas,UnitedStates
MASTER OF SCIENCE IN ENVIRONMENTAL ENGINEERING Texas A&M University - Kingsville
GPA: 4.00/4.00

31DEC 2017–31DEC2021 Sylhet, Bangladesh
BACHELOR OF SCIENCE IN CIVIL AND ENVIRONMENTAL ENGINEERING Shahjalal University of Science and Technology (SUST)
CGPA: 3.25/4.00

SKILLS, SOFTWARE & MACHINES:

Python | Delft3D | HEC-RAS | SOBEK | Ion Chromatography (IC) | Spectrophotometry | AutoCAD | Hydrodynamic modelling | Geographic Information Systems (GIS) | Statistical software | Microsoft Office | Minitab | SPSS
Water quality analysis | Sediment Analysis | Gas Chromatography | Hydrological modelling | Heavy Metal Analysis

Other Skills

Technical reporting | Teamwork | Problem solving

PROJECTS

28 MAY 2024 – CURRENT

Spatiotemporal Analysis of Nutrients and Sediment Transport in Nueces and Corpus Christi Bay

This research analyzes seasonal variations in nutrient and heavy metal concentrations in water and suspended sediments from five sites across Nueces and Corpus Christi Bays. Techniques include ICP-MS, IC spectrophotometry, and GIS spatial modeling. The project supports estuarine water quality forecasting and ecosystem health assessments under the NRT TREAWS program at Texas A&M University – Kingsville.

1 MAY 2023 – 30 APR 2024

Feasibility Study for Water Resource Management in Kirtonkhola, Sugandhya and Bishkhali Rivers of Bangladesh

- Built a Hydrodynamic Model in Delf3D of Kirtonkhola, Sugandhya, and Bishkhali Rivers
- Have done Erosion-Accretion Analysis and other Morphological parameters analysis
- Have done Meteorological Study of the study area.

1 JAN 2023 – 30 JUN 2023

Assessment of Dredging Impact on Hydrodynamics of Surma River

This project involved developing and calibrating a 1D/2D hydrodynamic model of the Surma River using HEC-RAS and Delf3D to assess the impact of dredging on water surface profiles, flow velocities, and sediment behavior. The study provided key insights for sustainable dredging practices and informed river management strategies. Results were published in *Water Practice and Technology* (IWA Publishing).

PUBLICATIONS

Rony, P.K., Uddin, M.M.,Amin, G.M.R., Munna, G.M., Dibya, D.D. (2023). Assessment of dredging impact on hydrodynamics of Surma River. Water Practice and Technology, 18(9), 2249–2264. https://doi.org/10.2166/wpt.2023.092

CONFERENCES

3 MAY 2025 – 5 MAY 2025 Graduate Hotel, University of Minnesota, Minneapolis, MN, USA

Universities Council on Water Resources (UCOWR) Annual Conference 2025

1. *"Assessment of Nutrient and Heavy Metal Levels and Distribution near the Nueces/Corpus Christi Bay"* — a study on spatial distribution of contaminants in coastal ecosystems.
2. *"Spatiotemporal Variations of Sediment Loading and Sizes and River Channel Dimensions and Their Implications"* — analysis of sediment dynamics and channel morphology in Nueces/Corpus Christi areas.

18 MAR 2023 – 20 MAR 2023 Dhaka, Bangladesh

International Conference of Water and Flood Management 2023

Presented the paper *"Assessment of Dredging Impact on Hydrodynamics of Surma River using Mathematical Model"* using Delft3D.

LANGUAGES

BENGALI | ENGLISH | SPANISH

AWARDS AND CERTIFICATES:

- NSF Graduate Research Fellow (National Science Foundation, Award No. 2244523)
- Dean Merit Scholarship Award
- Earned a Certificate in Applied Environmental Data Sciences, focusing on data analysis, modeling, and computational methods for environmental systems.
- Earned a Certificate in Capacity Development on Integrated Application of GIS and Remote Sensing

RECOMMENDATIONS

Dr. Jianhong-Jennifer Ren, Professor, Graduate Coordinator for M.S. Environmental Engineering, College of Engineering,

Texas A&M University - Kingsville, Texas, United States

Email jianhong.ren@tamuk.edu | **Phone** (+1) 3615932798

Dr. Jong-Won Choi Associate Professor and Graduate Coordinator for Civil Engineering,

Texas A&M University - Kingsville, Texas, United States

Email jong-won.choi@tamuk.edu | **Phone** (+1) 3615932025