# OINDRILA GHOSH

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## EDUCATION

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| 2018-2024 | **PhD, Environmental Engineering:** Ghosh Lab, University of Maryland Baltimore County. (GPA: 3.7/4) |
| 2017-2018 | **Graduate Research Assistant:** Water Management and Hydrological Sciences, Texas A&M University (GPA: 3.8/4) |
| 2015-2017 | **Master of Science (MSc), Ecology and Environment Studies:** Nalanda University, India. (GPA: 8.9/10; Uni Rank: 1) |
| 2012-2015 | **Bachelor of Science, Chemistry:** University of Delhi, India. |

## RESEARCH INTERESTS

- Fate and transport pathways of persistent and emerging pollutants in the environment.
- Quantification of the subsequent ecological/human exposures
- Characterization and analytical method development to identify and accurately quantify pollutant concentrations.

## RESEARCH EXPERIENCE

**2025-Present** — **Postdoctoral Associate in Civil and Environmental Engineering, University of Pittsburgh | Pittsburgh, PA, USA**

- Perform community-engaged air and dust sampling and assessment to estimate the amount of PFAS and SVOC/VOCs, the residents living close to a plastic cracker plant in Beaver County, PA were exposed to. [ongoing]
- Perform characterization of fluorinated plastics for composition and particle size and compare sensitivity across available method(s) with the larger aim of detecting and quantifying the fraction of macromolecular PFAS in unknown environmental and biological matrices. [ongoing]
- Develop the analytical method for detecting and quantifying SVOCs on an Agilent GC (7820A) equipped with MS (G7036A). [ongoing]
- Perform community engaged residential sampling of air from residents' home basements from VC and fluorochemical-containing firefighting foam impacted areas in East Palestine, OH. [ongoing]
- Perform characterization of environmental presence and distribution of VC and PFAS in VC and fluorochemical-containing firefighting foam impacted soil, sediment, surface water from East Palestine, OH. [ongoing]

**2018-2024** — **PhD Candidate in Environmental Engineering, University of Maryland Baltimore County | Baltimore, MD, USA**

- Thesis: Optimization of equilibrium passive sampling (PS) methods for surface water and porewater measurements
  - Performed mathematical modelling of the transport of organics in PS from surface waters to assess the true nature of time-integrated measurement of bioavailable concentration provided by PS under fluctuating ambient concentration.
  - Performed mass transfer modelling of diffusive kinetics of pollutants in surface waters and developed field-demonstrated PS devices that can perform accurate short-term measurements of bioavailable concentrations of organics (PCBs) by expediting approach to equilibrium, important for pollutant source tracking.
  - Performed mass transfer modelling of diffusive kinetics of pollutants in sediment porewaters and developed field-demonstrated vibration induced PS platforms that can perform accurate porewater measurements of bioavailable concentrations of organics (PCBs and Dioxins) by enhancing mass-transfer.

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| | ○ Performed mass balance modelling and lab-scale experiments and developed standardized methods for loading isotopically labelled PCB performance reference compounds in equilibrium PS for field-scale applications.<br>➢ Performed contaminated site characterization for remediation project in collaboration with the Delaware Department of Natural Resources and Environmental Control (DNREC) on ASTREET Ditch, Wilmington, DE through baseline monitoring prior to the application of an in-situ remedy followed by consecutive monitoring performed post remedy over three years.<br>➢ Contributed to setting up and data analysis of bench-scale treatability study for PCB and Hg impacted sediments, to evaluate in-situ treatment dose and expected reductions in bioavailable concentrations to freshwater oligochaete (Lumbriculus variegates).<br>➢ Contributed to development of novel functionalized polymeric thin films for equilibrium passive sampling of per- and polyfluoroalkyl substances (PFAS) compounds in surface and groundwater through isotherm studies.<br>➢ Performed food-web modelling and statistical analysis to evaluate the impact of equilibrium correction methods, used in interpreting bioavailable concentrations from PS, on calculating exposure levels in fish in the Anacostia River, Washington DC.<br>➢ Developed standard operating procedure for current laboratory to calibrate and perform sample analysis on GCMS.<br>➢ In charge of maintenance, performing QC checks on the analytical instrument and training graduate and undergraduate students on sample processing and analysis on instrument.<br>➢ Contributed to developing the proposal in response to a NIEHS funding opportunity on Strategies for Responsibly Reporting Back Environmental Health and Non-Genomic Research Results [NOFO Number: RFA-ES-23-006] |
| 2017-2018 | **Graduate Research Assistant at Texas Water Resources Institute (TWRI), TAMU**<br>**\| College Station, TX, USA**<br>Analyzed spatial (surface and depth profile) variability of water chemistry in groundwater wells to establish continuity of geochemical processes within transboundary aquifers on the Texas and Mexico border. |
| 2016-2017 | **Masters Student in Environmental Science, Nalanda University**<br>**\| Bihar, India**<br>Thesis: Transport of biochar in saturated porous medium under various physical-chemical conditions<br>• Synthesized and characterized nano-sized biochar by pyrolysis of biomass (rice husk and sugarcane bagasse).<br>• Analysed the impact of salinity, pH and grain size on the stability and transport of biochar nanoparticles through saturated porous media. |

## PUBLICATIONS

### Journal Papers

*(Manuscripts under review)*

- Equilibrium Passive Sampling for Short-term Measurements in Overlying Water. Oindrila Ghosh, Upal Ghosh.
- Passive sampling device design optimization for in-situ porewater and surface water measurements of hydrophobic organic contaminants. Oindrila Ghosh, Louis Cheung, Mehregan Jalalizadeh, Upal Ghosh
- Standardized method for loading PCB performance reference compounds into polymeric samplers. Oindrila Ghosh, Nathalie Lombard, Upal Ghosh

*2025*

- Modeling Time Scale of Integration in Equilibrium Passive Sampling. Oindrila Ghosh, Songjing Yan, Mandar Bokare, Upal Ghosh. *Environmental Toxicology and Chemistry, 2025; vgae003* https://doi.org/10.1093/etojnl/vgae003

### Reports

- PCB Source Tracking In Anne Arundel County Phase II. Nathalie Lombard, Louis Cheung, Oindrila Ghosh, Upal Ghosh. *Report for Anne Arundel County. (2024)*

- A-Street Ditch Segment 1 Baseline and Post-application Monitoring (October 2021). Oindrila Ghosh, Louis Cheung, Upal Ghosh. *University of Maryland Baltimore County. (2021). Report for A-Street Ditch Segment 1 Pilot Study (DE-1525), Wilmington, Delaware.* Report
- A-Street Ditch Segment 1 Baseline and Post-application Monitoring (October 2020). Oindrila Ghosh, Louis Cheung, Upal Ghosh. *University of Maryland Baltimore County. (2020). Report for A-Street Ditch Segment 1 Pilot Study (DE-1525), Wilmington, Delaware.* Report
- A-Street Ditch Segment 1 Baseline and Post-application Monitoring (March 2020). Oindrila Ghosh, Louis Cheung, Upal Ghosh. *University of Maryland Baltimore County. (2020). Report for A-Street Ditch Segment 1 Pilot Study (DE-1525), Wilmington, Delaware.* Report

**Science Communication Articles**

- Optimization of Passive Sampling for surface-water and sediment porewater measurements. Oindrila Ghosh.
- *Student Research Highlight, CPRC SETAC Newsletter, Spring 2022.* Article
- Inclusive Diversity in Data Visualization. Nathalie Lombard, Oindrila Ghosh. *CPRC SETAC Newsletter, Spring 2022.* Article
- International Students' Perspective. Oindrila Ghosh. *CPRC SETAC Newsletter, Spring 2021.* Article

## AWARDS

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| 2023 | Winner of the Student Paper Competition for the Battelle's Eleventh International Conference on the Remediation and Management of Contaminated Sediments. |
| 2020 | 3rd place Best Student Platform Presentation, SETAC Chesapeake Potomac Regional Chapter Annual Virtual Meeting, September 2020. |
| 2017 | Lechner Graduate Fellowship, College of Geosciences, Texas A&M University |

## TALKS

**TOPIC: Optimization of passive sampling methods for surface water and porewater measurements**

2023
- SETAC North America 44rd Annual Meeting, Louisville, KY. (Poster)
- Battelle's Eleventh International Sediments Conference. (Poster)

2022
- SETAC North America 43rd Annual Meeting, Pittsburg, PA. (Poster)

**TOPIC: Time-Integration in Equilibrium Passive Samplers: A Mathematical Modeling Approach**

2022 International Passive Sampling Workshop, Utrecht, The Netherlands. September 2022. (Virtual platform presentation)

2021 SETAC North America 42nd Annual Meeting. (Virtual platform presentation)

2020
- SETAC North America 41st Annual Meeting. (Virtual platform presentation)
- SETAC Chesapeake Potomac Regional Chapter Annual Meeting. (Virtual platform presentation)

**TOPIC: Hydro-chemical Connectivity of the Allende-Piedras Negras Transboundary Aquifer**

2018 AWRA Summer Specialty Conference on the Science, Management, and Governance of Transboundary Groundwater, Fort Worth, TX (Platform Presentation)

## TECHNICAL SKILLS

**Laboratory:**

- PFAS extraction and analysis: EPA Method 1633
- PCB extraction and analysis: EPA Method SW-846
- Method development on GCMS/LCMS for chemical identification and quantification of semi volatile and volatile organic compounds (VOC/SVOC)/ per-fluoroalkyl substances (PFAS).
- PFAS functionalized material synthesis using Agarose hydrogel, Cellulose Acetate and PDMS base polymers embedded with Activated Carbon, Human Serum Albumin, and OASIS-Wax as part of passive sampler development.

**Equipment:**

- LC-MS (Shimadzu 8050)
- GC-MS (Agilent 7890B GC with Agilent 5977B MS),

- GC-ECD (Agilent 6890N),
- Horiba LabRAM Soleil Raman Microscope.
- UV-Vis Spectrometer,

**Geospatial Mapping:** ArcGIS
**Programming:** MATLAB
**Statistical Analysis:** R
**Design:** Adobe Lightroom, InDesign, Premiere Pro

## SERVICE AND LEADERSHIP

- **2021-2024:** Outreach blog chair of North America Student Advisory Council (NASAC), SETAC.
- **2020,2021:** Communication of Ghosh lab overview to incoming graduate students at the UMBC open house.
- **2019-2020:** Social Chair of Graduate Student Organization of Chemical, Biochemical and Environmental Engineering (CBEE) Department, UMBC.
- **2017-2018:** Member of editorial board for The Drop Newsletter, Water Management and Hydrological Sciences (WMHS), Texas A&M University.