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Faisal B. Ashraf

Education

University of Oulu, Finland. *May' 16 - April' 20*
PhD (Tech.) Water, Energy and Environmental Engineering Research Unit.
Thesis Title: River regimes and energy demand interactions in Nordic rivers.
Principal Supervisor: Prof. Bjørn Kløve.
Examiners: Prof. Castelletti Andrea Francesco and Prof. Tor Haakon Bakken.
Opponent: Prof. Miroslav Marence.

University of Oulu, Finland. *September' 14 - Feb' 16*
MSc. (Tech.), Water Resources and Environmental Engineering.

University of Kashmir, Jammu and Kashmir, India. *July' 08 - Dec' 12*
B.E. Civil Engineering.

Research Interests

Environmental flows, Role of hydropower in changing energy market, Northern hydrology, Rivers and streams restoration, Human-river interactions, Eco-hydraulics, Compound flood modelling.

Research and Professional Experience

Postdoctoral Reseacrh Associate, *Oak Ridge National Laboratory* *August' 23 - Current*
Projects:
-Quantifying Greenhouse Gas Emissions from Hydropower Reservoirs.
-A Roadmap to Intelligent Watersheds.
-Non-powered Dam Development Opportunities.

Research Fellow(sustainable hydropower), *Stockholm Environment Institute* *July' 22 - July' 23*
Projects:
-Water in the fossil-free transition: A system approach to governing the water-energy nexus..
-Gridless Solutions: Providing off-grid electricity, sanitation and freshwater.
-HydroHazard: Evaluating the damage that may be caused by multiple water hazards and provides policy recommendations and actions for mitigation and adaptation.

Senior Environmental Consultant / Project Manager, *Earthster* *Feb' 22 - July' 22*
Duties:
-Training and supporting partners and customers in implementing LCA projects.
-Creating partner and customer relationships.
-Organizing and leading regular customer project meetings.
-Clearly communicate objectives, timelines, project status, on a regular and consistent basis.
-Provide LCA professional guidance to partners and customers to ensure projects stay on track.

Postdoctoral Researcher, *University of Oulu* *May' 20 - Feb' 22*
Projects:
-Ecoriver: Assessing and valuing ecosystem services for managing hydropower constructed rivers systems.
-Biowater: An integrating nexus of land and water management for a sustainable Nordic bioeconomy

Project Researcher, *U*niversity of Oulu *March' 16 - May'20*
Project:
-Changing river regimes: Analysis of changes in climate and energy demand interactions in northern rivers. *May' 16 - Dec2019*

Visiting Scholar, *University of California at Berkeley* *Aug' 19 - Jan'20*
Duties:
-Worked with the United States National Park Service (NPS) to evaluate variability and long-term trends

in the Bay area stream discharge.
- Surveyed and reported post-project appraisal of the Wingfield whitewater park project on Truckee river, at Reno, Nevada, United States.

Soil Conservation Expert, *Department of rural development, Integrated Watershed Management Program, Govt. of India.* *January' 14 - August' 14*
-Surveying, project cost estimation and design of soil retaining structures.
-Preparing Detailed Project Reports (DPR).
-Formulating and implementing soil conservation methods.

Grants and Awards

Nessling Foundation PhD Research project grant, 98000€ (2017-2019)
Maa-ja Vesi Teknikaan Tuki (MVTT) grant, 12000€ (2019)
Sven Hallin Foundation grant, 3000€, (2019)
University of Oulu Scholarship Foundation grant, 5000€, (2019)
Olvi Foundation grant, 3000€, (2018)
University of Oulu Scholarship Foundation grant, 5000€, (2018)
Olvi Foundation grant, 7000€, (2016)
Maa-ja Vesi Teknikaan Tuki (MVTT) grant, 1800€ (2016)

Computer Skills

Languages: R, Matlab (Basic), LaTeX.
Drafting, Structural Analysis and Design: AutoCAD, Tekla structures.
Geospatial and River data analysis: IHA, HEC-RAS, WEAP, ArcGIS

Languages

Hindi (Mother Tongue), English (Fluent), Finnish (Basic), Swedish (Beginner) Urdu (Fluent).

Extra Interests

Hobbies Hiking, Cricket, Tennis, Cooking, Travelling.
Literary Interests: Hiking, Camping, Philosophy, Science Fiction.

Referees

Professor Björn Klöve, University of Oulu, bjorn.klove@oulu.fi, Phone number: +358 294 48 4510, +358 40 594 4514
Assistant Professor Hannu Marttila, University of Oulu, hannu.marttila@oulu.fi, Phone number: +358 294 48 4393
Professor G. Mathias Kondolf, University of California, Berkeley, Kondolf@berkeley.edu, Phone number: +1510-664-7804
Carly Hansen, Oak Ridge Natinal Laboratory, hansench@ornl.gov, Phone number: +1-865-574-0293

Journal articles (Published and under review)

Ashraf, F. B., Huuki, H., Haghighi, A. T., Juutinen, A., Romakkaniemi, A., & Marttila, H. (2024). Valued peaks: sustainable water allocation for small hydropower plants in an era of explicit ecological needs *(Under Review in WRR)*.

Marttila, H., Huuki, H., **Ashraf, F. B.,** Patro, E. R., Hellsten, S., Ruokamo, E., Karhinen, S., Atso, R., Kopsakangas-Savolainen, M., Pongracz, E., Virk, Z., Torabi Haghighi, A., & Juutinen, A. (2024). River systems under peaked stress. *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/ad4db9

Ruokamo, E., Juutinen, A., **Ashraf, F. B.,** Haghighi, A. T., Hellsten, S., Huuki, H., ... & Vermaat, J. E. (2024). Estimating the economic value of hydropeaking externalities in regulated rivers. *Applied Energy*, *353*, 122055.

Virk, Z. T., Ashraf, F. B., Haghighi, A. T., Kløve, B., Hellsten, S., & Marttila, H. (2024). Nordic socio-recreational ecosystem services in a hydropeaked river. *Science of the Total Environment*, *912*, 169385.

Baubekova, A., Akbari, M., Etemadi, H., **Ashraf, F. B.,** Hekmatzadeh, A., & Haghighi, A. T. (2023). Causes & effects of upstream-downstream flow regime alteration over Catchment-Estuary-Coastal systems. *Science of The Total Environment*, *858*, 160045.

Jelovica, B., Marttila, H., **Ashraf, F. B.,** Kløve, B., & Torabi Haghighi, A. (2023). A probability-based model to quantify the impact of hydropeaking on habitat suitability in rivers. *River Research and Applications*, *39*(3), 490-500.

Huuki, H., Karhinen, S., **Ashraf, F. B.,** Haghighi, A. T., & Marttila, H. (2022). The economic cost of hydropower environmental constraints under decreasing price volatility. *River Research and Applications*, *38*(10), 1815-1828.

Ashraf, F. B., Haghighi, A. T., Riml, J., Mathias Kondolf, G., Kløve, B., & Marttila, H. (2022). A method for assessment of sub-daily flow alterations using wavelet analysis for regulated rivers. *Water Resources Research*, *58*(1), e2021WR030421.

Haghighi, A. T., **Ashraf, F. B.,** Riml, J., Koskela, J., Kløve, B., & Marttila, H. (2019). A power market-based operation support model for sub-daily hydropower regulation practices. *Applied Energy*, *255*, 113905.

Ashraf, F. B., Haghighi, A. T., Riml, J., Alfredsen, K., Koskela, J. J., Kløve, B., & Marttila, H. (2018). Changes in short term river flow regulation and hydropeaking in Nordic rivers. *Scientific reports*, *8*(1), 17232.

Ashraf, F. B., Haghighi, A. T., Marttila, H., & Kløve, B. (2016). Assessing impacts of climate change and river regulation on flow regimes in cold climate: A study of a pristine and a regulated river in the sub-arctic setting of Northern Europe. *Journal of Hydrology*, *542*, 410-422.

Reports and Policy Briefs

Xylia, M., **Ashraf, F. B.,** Rudberg, P. M., Barquet, K., & Han, G. (2024*). Keeping the flow: hydropower, river ecosystems and governance in northern Sweden*.

Barquet, K., Xylia, M., & **Bin Ashraf, F.** (2023). *Include the Fossil-Free Transition in the Next Water Action Agenda.* SEI Brief. Stockholm Environment Institute. https://doi.org/10.51414/sei2023.018

Xylia, M., **Bin Ashraf, F.,** & Barquet, K. (2023). *Hydropower Development in the Energy Transition: Perspectives from Northern Sweden.* SEI Brief. Stockholm Environment Institute. https://doi.org/10.51414/sei2023.048

Barquet, K., Berg, P., Hieronymus, M., Vieira Passos, M., André, K., Segnestam, L., Englund, M., Inga, K., & **Bin Ashraf, F.** (2022). *Assessing Cascading Effects from Multiple Hazards: An Example from Sweden.* https://doi.org/10.51414/sei2022.042

Conferences

Ashraf, F. B., Haghighi, A. T., Marttila, H., & Kløve, B. (2016). Comparing the flow regime alteration of pristine and regulated rivers in Lapland (Kemijoki river and Tornio river). In *International Society for Ecological Modelling global conference*.

Ashraf, F. B., Marttila, H., Torabi Haghighi, A., Alfredsen, K., Riml, J., & Kløve, B. (2017, April). Hydropeaking in Nordic rivers-combined analysis from effects of changing climate conditions and energy demands to river regimes. In *EGU General Assembly Conference Abstracts* (p. 15631).

Ashraf, F. B., Torabi Haghighi, A., Riml, J., Koskela, J. J., Alfredsen, K., Kløve, B., & Marttila, H. (2018, April). Analysis of Status and Trends in Short Term Flow Regulation in Nordic Rivers. In *EGU General Assembly Conference Abstracts* (p. 12113).

Ashraf, F. B., Torabi Haghighi, A., Riml, J., Koskela, J. J., Kløve, B., & Marttila, H. (2019, December). Assessment of Sub-daily Flow Alterations by Utilizing the Globally Mapped Free Flowing Rivers and Wavelet Analysis. In *AGU Fall Meeting Abstracts* (Vol. 2019, pp. H51Q-1709).

Ashraf, F. B., Vieira Passos, M., & Barquet, K. (2023, May). Modelling compound flooding events for multiple hazards mapping: an example from Sweden. In *EGU General Assembly Conference Abstracts* (pp. EGU-16828).