Charlie Ferguson

Email: charlierferguson@gmail.com
Nationality: British
Age: 28
Languages: English (fluent), French (CEFR Level B2 *accredited*), Spanish (CEFR Level A2)

Since September 2021 I have been living in the Galapagos Islands, working on various water and hydrological engineering projects. My PhD, completed in September 2020 at the University of Cambridge, involved coupling hydrological and hydraulic models to characterise the catchment-scale impacts of spatially dispersed natural flood management. I was then a Research Fellow at the Cranfield Water Science Institute, working as part of an international research consortium and leading a 'working group' to evaluate efficiencies of off-grid sanitation networks using network analyses. I gained significant teaching experience at both institutions (at under- and postgraduate level). I have wide-ranging practical experience (flow gauging, water quality testing,) and am proficient with various hydrological, hydraulic, geospatial and network modelling techniques. I am fluent in coding languages such as R, Python and MATLAB (among others) and have been the primary author on numerous peer-reviewed publications.

Employment / Education

2020 – 2021 Cranfield Water Science Institute, Cranfield University
Research Fellow in Off-Grid Sanitation
Worked on the 'Scaling up Off-grid Sanitation' project, which involved partners and study sites in Cap Haitian, Cape Town, Lima and Nairobi. This involved performing network analyses to understand the implications of scaled sanitation services within impoverished urban environments.

2017 – 2020 Centre for Sustainable Development, Cambridge University Engineering Department
PhD student
Worked alongside the 'Urban Flood Resilience' project, evaluating the impacts of natural interventions on the performance of urban water systems. This involved characterising catchment-scale hydrological response using coupled hydrological and hydraulic models.

2016 – 2017 FIBE College of Doctoral Training, Cambridge University Engineering Department.
Master's in engineering research

2012 – 2016 School of Engineering, University of Warwick.
Master's in civil engineering
Received a 1st Class Honours. Achieved the top academic score in the cohort in both 2015 and 2016.

Publications

In Press **Ferguson** et al., *A review of the resource barriers facing scaled container-based sanitation service chains*. Journal of Water, Sanitation and Hygiene

2021 **Ferguson** et al., *An evaluation of different provision strategies for scaled-up container-based sanitation*. H2Open; 4 (1). https://doi.org/10.2166/h2oj.2021.112

2021	**Ferguson**, C and Fenner, R.A. *How natural flood management helps downstream urban drainage in various storm direction*. Proceedings of Institution Civil Engineers Journal of Water Management. https://doi.org/10.1680/jwama.19.00057
2020	**Ferguson**, C. and Fenner, R.A. *The impact of Natural Flood Management on the performance of surface drainage systems: A case study in the Calder Valley.* Journal of Hydrology; 590 (125354). https://doi.org/10.1016/j.jhydrol.2020.125354
2020	**Ferguson**, C. and Fenner, R.A. *The potential for Natural Flood Management to maintain free discharge at urban drainage outfalls.* Journal of Flood Risk Management; 13 (3). https://doi.org/10.1111/jfr3.12617
2020	**Ferguson**, C. and Fenner, R.A. *Evaluating the effectiveness of catchment-scale approaches in mitigating urban surface water flooding.* Philosophical Transactions of the Royal Society A; 378 (2168). https://doi.org/10.1098/rsta.2019.0203

Teaching experience

2021	**Supervisor** on Cranfield Water Science Institute **Wastewater Management MSc Course**. This involved leading a group project (containing seven students) over three months. The project investigated the links between sanitation technologies and local biodiversity degradation.
2021	**Supervisor** on Cranfield Water Science Institute **Advanced Water Management MSc Course**. This involved supervising two different dissertations, one of which evaluated the feasibility of using spatially based adaptive management techniques to evaluate sanitation technologies. The other evaluated the feasibility of using tributary desynchronisation to mitigate downstream flood risk.
2018 – 2019	**Supervisor** on Cambridge University Engineering Department's **Water Engineering** module. This involved teaching two cohorts of 10 third year undergraduate students in the fundamental principles of water and hydrological engineering (unit hydrographs, open channel hydraulics, contaminant transfer etc.)
2013 – 2016	**Team Leader for Warwick in Africa** charity. This involved leading several different groups of 10 people in teaching of maths in English in local schools in townships around Soweto and Accra.

Recent Funding Applications

2022	Co-ordinated a bid for **$30,000** from the 'Galapagos Conservancy' for a community project on 'One Health' principles on Isabela (*Funding awarded*)
2022	Co-ordinated a bid for **$100,000** from the 'Co-op Carbon Innovation Fund' for a research project investigating combined fog and rainwater harvesting on Santa Cruz (*Completed final assessment round, awaiting confirmation and diligence checks*)
2021	Co-ordinated bid for **$8,000** from the 'Direct Aid Program' for research project conducting quality testing of surface water bodies (*Awaiting verdict*)