UNSW Water Research Laboratory

UNSW SYDNEY

Yarran Doherty

Project Engineer | Water Engineering

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Yarran is a Project Engineer at the Water Research Laboratory. He completed a double degree in Civil and Environmental Engineer at UNSW with a focus on water engineering including hydraulics and coastal engineering. Following his studies, Yarran continued the research from his Honours thesis developing and publishing a python-based shoreline extraction tool for remote monitoring of coastal erosion utilising satellite imagery.

Yarran has diverse experience across a wide range of disciplines including coastal and maritime engineering, sediment transport, flood mitigation, hydraulic network modelling, environmental monitoring and geotechnical investigations. He has experience in field data collection and remote sensing with a strong background in data visualisation and automation to address complex environmental challenges.

Qualifications

BE Hons 1 (Civil Engineering), UNSW, 2020
BEngSci (Environmental Engineering), UNSW, 2020

Professional history

Sep 2022 – Current:	Project Engineer, UNSW WRL
Feb 2021 – Sep 2022:	Graduate Water Engineer, AECOM
Sep 2020 – Feb 2021:	Graduate Research Assistant, UNSW WRL
Nov 2019 – Jun 2020:	Undergraduate Coastal Engineer, Royal HaskoningDHV
Jun 2018 – Sep 2018:	Undergraduate Environmental Engineer, RCA Australia

Awards

2020: Maxar Spatial Regional Challenge (First Place)
2020: Engineers Australia NCWE Student Scholarship
2019: Engineers Australia D.N. Foster Memorial Fellowship Award
2018: UNSW Exchange Academic Achievement Award

Expertise

- Remote sensing and shoreline monitoring
- Estuarine water quality modelling
- Beach geomorphology and coastal stabilisation
- Environmental data collection
- Data analysis and visualisation
- Flood mitigation
- Hydraulic network modelling
- Coastal structure condition assessments

Summary of relevant experience

Water Quality
2022-24: Assessment of Sewage Overflow Impacts on Oyster Harvest Areas in NSW Estuaries, NSW

Coastal Monitoring and Remote Sensing
2023: CoastSat Real-Time Coastal Erosion Monitoring Dashboard, NSW
2023: Narrabeen Lagoon Sedimentation Remote Sensing Study, NSW
2022: Merimbula Entrance Remote Sensing Study, NSW
2022: Gold Coast Coastal Imaging and Beach Width Monitoring, QLD

Coastal Processes
2020: Geraldton Coastal Process Study, WA
2020: Coromandel Coastal Hazard Risk Assessment, NZ
2020: Surfers Paradise Coastal Walkway Probabilistic Hazard Assessment, QLD
2020: Wooli Beach Sand Management Strategy, NSW
2019: HMAS Cerberus Channel Dredging, VIC
2019: Warilla Beach Coastal Management Cost-Benefit Analysis, NSW

Flood Modelling
2022: Canberra Light Rail Stage 2a, ACT
2022: Bankstown Airport Maser Plan, NSW
2022: Knapsack Gulley Viaduct Remediation, NSW
2022: Yule River Sand Mine Feasibility Study, WA

Hydraulic Network Modelling
2022: Sydney Water Growth Servicing Investment Plan, NSW
2022: Central Coast Council Available Fire Flow Assessment, NSW
2021: Coalfields and West Lake Macquarie Water Supply Servicing Strategy, NSW
2021: Griffith Potable Water System Modelling Study, NSW

Maritime Condition Assessment
2021: Finocane Island Berth C & D Condition Assessment, WA
2019: Taylors Point Baths Jetty Condition Assessment, NSW
2019: Picnic Point Boat Ramp Upgrade, NSW

Computing Skills

GIS:	QGIS, ArcGIS, ArcMap
Programming:	Python, MATLAB, Excel
Numerical Modelling:	RMA, TUFLOW, HEC-RAS, InfoWorks WS Pro, MIKE Mouse

Publications

Doherty Y., Harley M.D., Splinter K.D., Vos K. (2022). *A Python Toolkit to Monitor Sandy Shoreline Change Using High-Resolution PlanetScope Cubesats*. Environmental Modelling & Software.

Doherty, Y., Splinter K.D., Harley M.D., Vos K. (2021). *The Application of High-Resolution PlanetScope Dove Satellite Imagery for Near-daily Shoreline Monitoring*, Coasts & Ports 2021

Doherty, Y. (2020) *Evaluation of PlanetScope Dove Satellite imagery for High-Resolution, Near-Daily Shoreline Monitoring*, Honours Thesis, UNSW.

Conference Presentations

2023: *Australasian Young Coastal Scientists & Engineers*
2022: *Australasian Coasts and Ports*
2021: *Australasian Young Coastal Scientists & Engineers*

WRL Technical Reports

Doherty, Y, Tucker, TA, Miller, BM 2023, “Narrabeen Lagoon entrance volume estimation tool”, *WRL Technical Report 2021/40*, for Northern Beaches Council, UNSW Water Research Laboratory

Doherty, Y, Carley, JT, Miller, BM, Drummond, CD 2023, “Merimbula Lake entrance sediment study”, *WRL Technical Report 2023/27*, for Bega Valley Shire Council, UNSW Water Research Laboratory