

SPECIALISTS IN CATCHMENTS, RIVERS AND FLOODPLAINS

The Water Research Laboratory (WRL) has an active team producing world leading research and delivering projects on catchments, rivers and floodplains. Our team has diverse expertise encompassing advanced knowledge of catchment hydrology, dam and river flow control structures, reservoir mixing, river morphodynamics, floodplain hydraulics and floodplain management.



THE TOOLS OF OUR TRADE

Our laboratory has state-of-the-art resources that include:

- A team of flexible experienced professional staff comprising academics, engineers, scientists, trades and support staff.
- Large and sophisticated hydraulic laboratories with leading edge velocity, tracer, aeration and sediment measurements.
- Numerical modelling techniques including two and three dimensional flow and water quality modelling.
- Advanced field data collection equipment including drone based topography and vegetation mapping

WHAT WE DO

- Environmental flow assessment
- Floodplain modelling – physical and numerical
- Floodplain risk management including flood hazard and vulnerability assessment
- Joint assessment of ocean and catchment flooding events
- Flood Damage assessment
- River hydraulics including control structures and culvert blockage
- Stormwater and major drainage hydraulics
- Reservoir management including destratification.

No other group in Australia has the unique combination of the experienced staff with access to state of the art data collection capabilities and analysis, physical laboratories and numerical modelling techniques that WRL can offer.

This combination of expertise, skills and equipment provides us with the ability to apply novel approaches to our research and industry projects.

OUR PARTNERS

WRL academics and project engineers collaborate extensively with university researchers both internationally and within Australia. In addition to this, extensive collaboration with government and industry is also a hallmark of WRL. The WRL Projects Team are industry experts, providing applied solutions to specific problems.

SELECTED RECENT PROJECTS

- Manning River environmental flows
- Australian National Flood Hazard Guideline
- NSW Concidence of Coastal and Catchment Flooding
- Australian Rainfall and Runoff Review Project 15, Two Dimensional Modelling of Floodplains
- Australian Rainfall and Runoff Review Project 10 Safety Design Criteria for People and Vehicles
- Newcastle City Wide Floodplain Management Plan
- Hunter River Water Quality Modelling
- Botany Bay Catchment and Receiving Water Quality Modelling
- Assessment of Flood Hazard in Urban Floodplains
- Assessment of road culvert blockage
- Voluntary Purchase Assessment of Flood Affected Properties.

OUR EXPERTS



Grantley Smith is acknowledged by his peers for his expertise in numerical and physical modelling of catchments, rivers and floodplains. He is a team leader with a proven track record for leading multi-disciplinary teams delivering practical solutions to environmental investigations.



Associate Professor Ron Cox has extensive research experience in water and environmental engineering and management, working with industry and government within Australia and overseas. He is the National Convener of the Australian Climate Change Adaptation Research Network for Settlements and Infrastructure (ACCARNSI).



Brett Miller is a Principal Engineer with expertise in estuarine engineering and management, specializing in hydraulics, effluent dispersion and environmental flows. He is an expert in numerical modelling of catchment runoff and the hydrodynamic of rivers, estuaries and oceans. Further, he has undertaken physical modelling and assessments of large scale hydraulic control structures.