

The Northern Territory has its own *water story*

1950s



Flooded drilling rig, Humpty Doo



V. Ludwig, Katherine floods, 1957



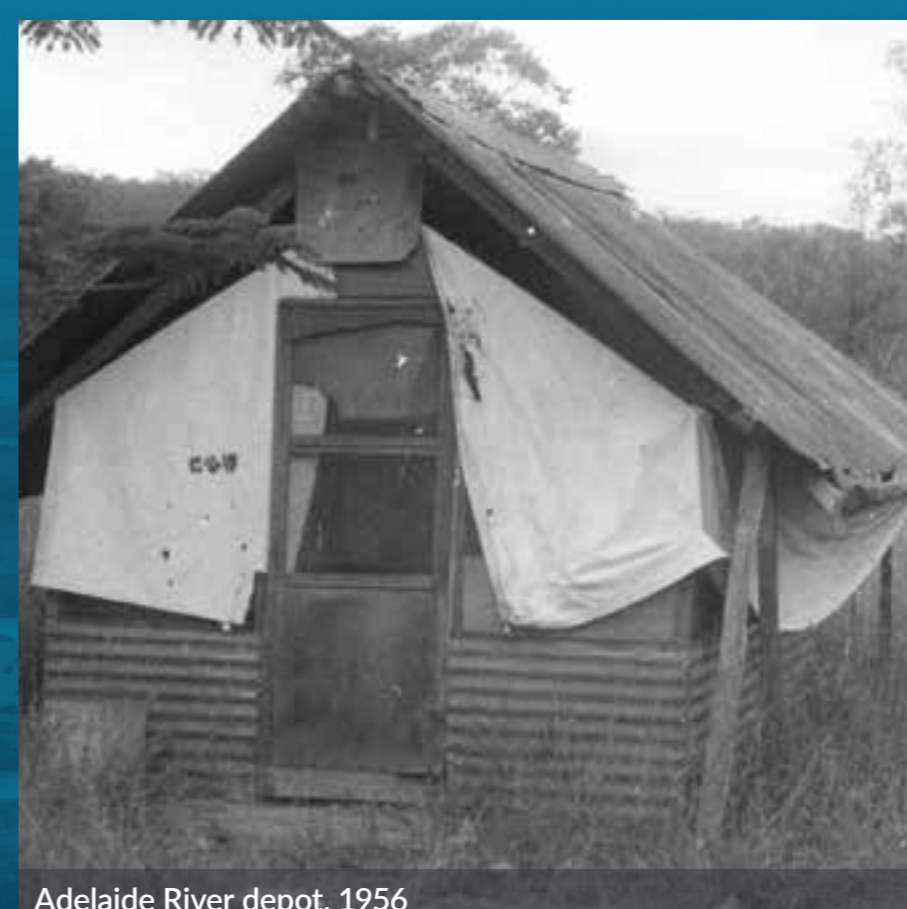
J. Bunce, on way to Connellan, 1957



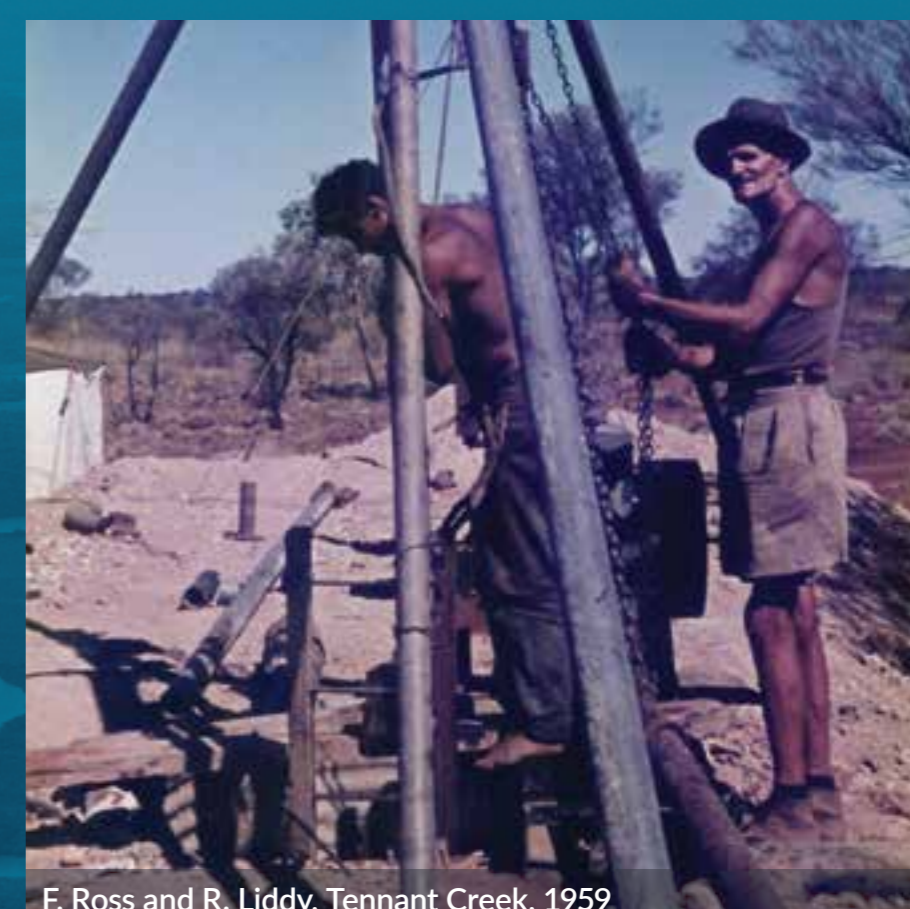
Water Use Branch, 1958/59



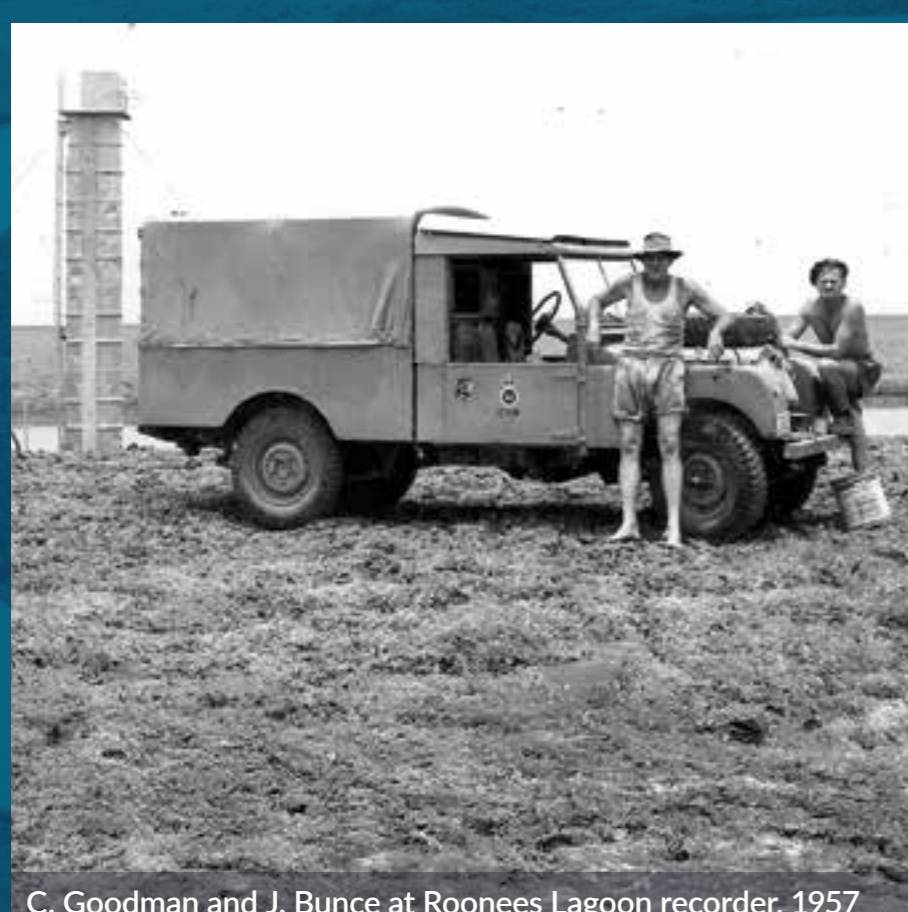
Water Use Branch, Cavenagh Street, 1955



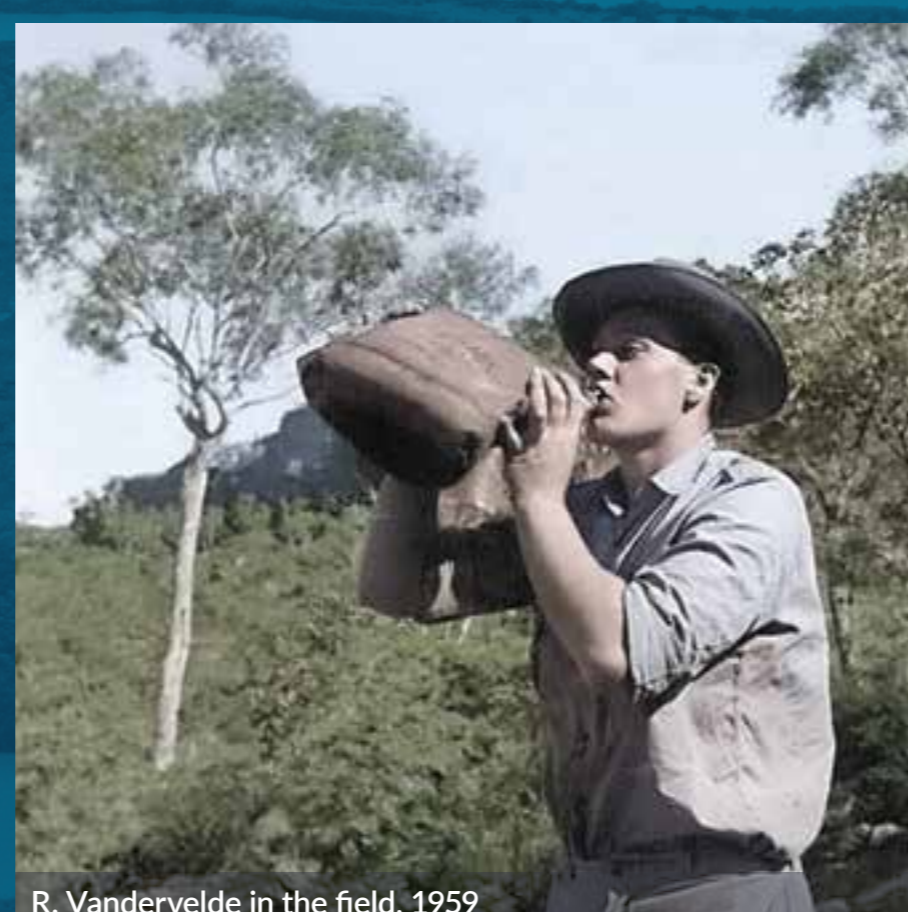
Adelaide River depot, 1956



F. Ross and R. Liddy, Tennant Creek, 1959



C. Goodman and J. Bunce at Roonees Lagoon recorder, 1957



R. Vandervelde in the field, 1959



Stevens chart recorder

In 1955, the Water Use Branch was formed in Darwin on Cavenagh Street, tasked with surveying the Northern Territory's largely unexplored water resources. Initially focused on rice-farm surface-water data collection, it soon expanded to include planning staff: surveyors, draftsmen, samplers, and lab personnel. By 1956, chemical water testing was underway via a permanent lab and a portable unit on a Land Rover.

In response to severe drought, a groundwater section was added. Two bore test units were purchased, and by 1957, the division ran its first drilling rig. In 1959, new rotary rigs enabled drilling in hard rock, critical for aquifers at sites like Berry Springs and Humpty Doo. That same year, the branch was renamed the Water Resources Branch, growing to 82 staff and opening an Alice Springs office.

Floods in 1955–56, 1956–57, 1957, and April 1959 prompted hydrographic surveys using helicopters and even horses (Operation Horse Lift) to reach remote streamflow sites. By decade's end, 58 stream gauges and 9 rain gauges were in place.

In 1959, legislative reforms including the *Rice Development Agreement Ordinance (1956)* and amendments to the *Control of Waters Ordinance* mandated driller registrations, bore reports, and strata sampling, leading to the Territory's first comprehensive bore database.

It now contains data on 42,571 bores, with current monitoring of 496 groundwater and 178 surface water sites supporting assessments, modelling, planning, and licensing.

The Northern Territory has its own *water story*

1960s



Water Resources camp at West Baines, 1962



Hydro course staff



Inside a Sydney Williams hut



Gauging station



C. Thurgood and R. Reiner, 1966



Victoria River recorder, Surprise Creek, 1960

In 1961, the Northern Territory introduced the Water Supplies Development Ordinance, appointing the Director of the Water Resources Branch as the Commissioner of Water Development.

The following year, the Australian Water Resources Council (AWRC) was established to coordinate national water resource planning, with divisional staff participating in its technical committees.

During this period, legislative amendments and federal initiatives enhanced the regulation of water licensing and control of works in watercourses, reflecting a growing commitment to investigating surface and groundwater resources. Key projects included studies on the Ord River, Mt Bundy Road crossing, Adelaide River bridge, and tidal movements in Darwin Harbour and Melville Bay.

The "Dud Bore Scheme," initiated in 1961, provided financial support to pastoralists by compensating for non-productive bores and offering loans for water development. This scheme also accelerated groundwater resource mapping across the Northern Territory.

By 1962, Water Resources staff numbered 126, increasing to 172 by 1965, with a depot established in Katherine. By 1967, the division managed 191



Water Resources hut, Katherine Gorge

gauging stations across regions including the Victoria and Daly River Basins, Melville Island, and the Todd, Finke, and Georgina River Basins.

In 1969, Manton Dam was selected for a national evaporation study to improve forecasting methods for lakes and reservoirs. This involved constructing one raft and two land-based meteorological stations, with weekly maintenance visits.

Fieldwork often required staff to spend extended periods in remote areas, equipped with basic provisions and receiving a daily allowance of \$1.35. They faced challenges such as helicopter incidents and vehicle accidents. Notably, in 1966, hydrographer Lew Matthews was awarded the British Empire Medal for rescuing a pilot from a burning helicopter in the Darwin River area.

The Northern Territory has its own *water story*

1970s



Depot, Winnellie Showgrounds



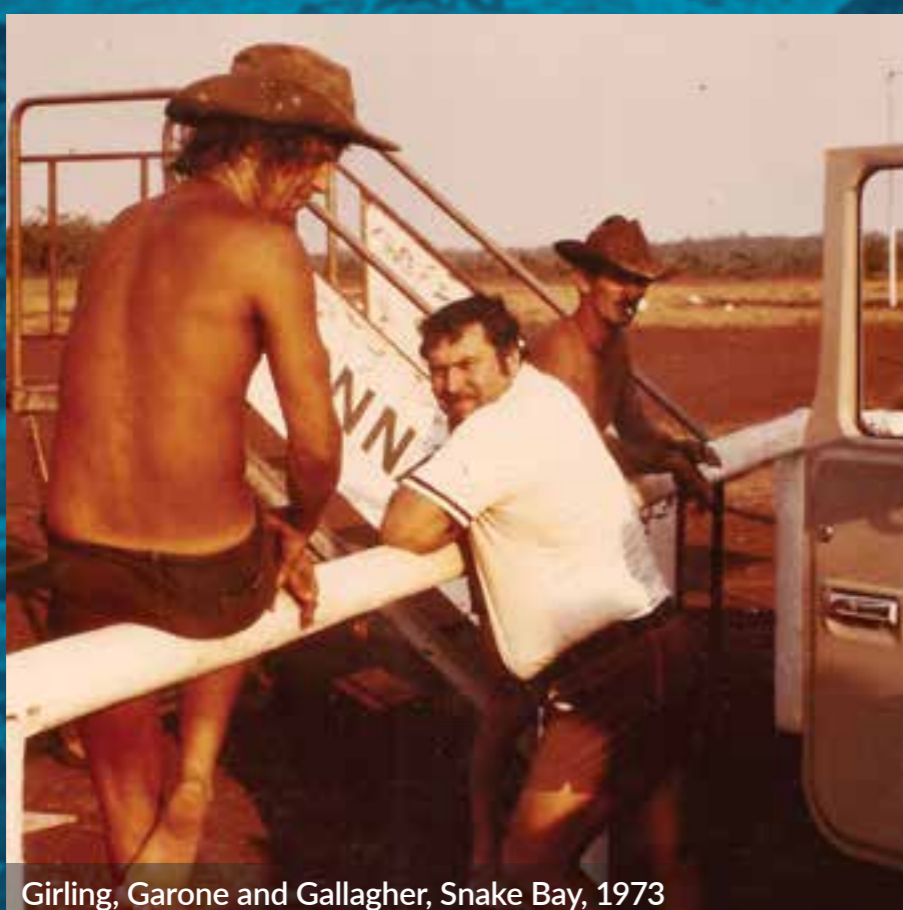
Drilling in Jabiru, 1972



C. Beard, steam gauging, Roper River



Gauging, Jablika Billabong



Girling, Garone and Gallagher, Snake Bay, 1973



Manton Dam evaporation study. I. Watson, J. Lawrie and P. McNeil, 1970



Bush mechanics, 1972

The 1970s saw major upheaval for the Water Resources Division, from a fire at the Winnellie microbiology lab to record flooding and Cyclone Tracy.

The 1973–74 wet season delivered unprecedented rain, flooding much of the Territory for months, including the Todd River. Between 1973 and 1977, over 114 gauging stations surpassed previous flood records in regions like western Arnhem, Daly, Katherine, Roper, and Victoria River, and Darwin received 2,196 mm of rain in 1976–77. High waters closed B and Barkly Highways and flooded the Stuart Highway in Alice Springs.

The 1974–75 wet season brought cyclones Selma, Amelia, and devastating Cyclone Tracy. Tracy struck on Christmas Day 1974, wrecked up to 80% of Darwin's buildings, left around 35,000 of around 47,000 residents homeless, and triggered the largest evacuation in Australian history.

The Division assisted with the emergency response and Darwin's rebuild, supplying water and sanitation when infrastructure collapsed, and constructing temporary sewer facilities. It helped implement new building codes and supported the creation of the Northern Territory Emergency Service in 1975.

By 1976, the Division operated 80 rain gauges across nine regions, each staffed by two technicians. The most comprehensive hydro-meteorological coverage was in the Magela Creek system, with 19 flow gauges and 9 rain gauges.

In 1978, major groundwater projects supported water supplies in places like Yulara, Jabiru, Alice Springs, Mereenie, Tennant Creek and Gove.

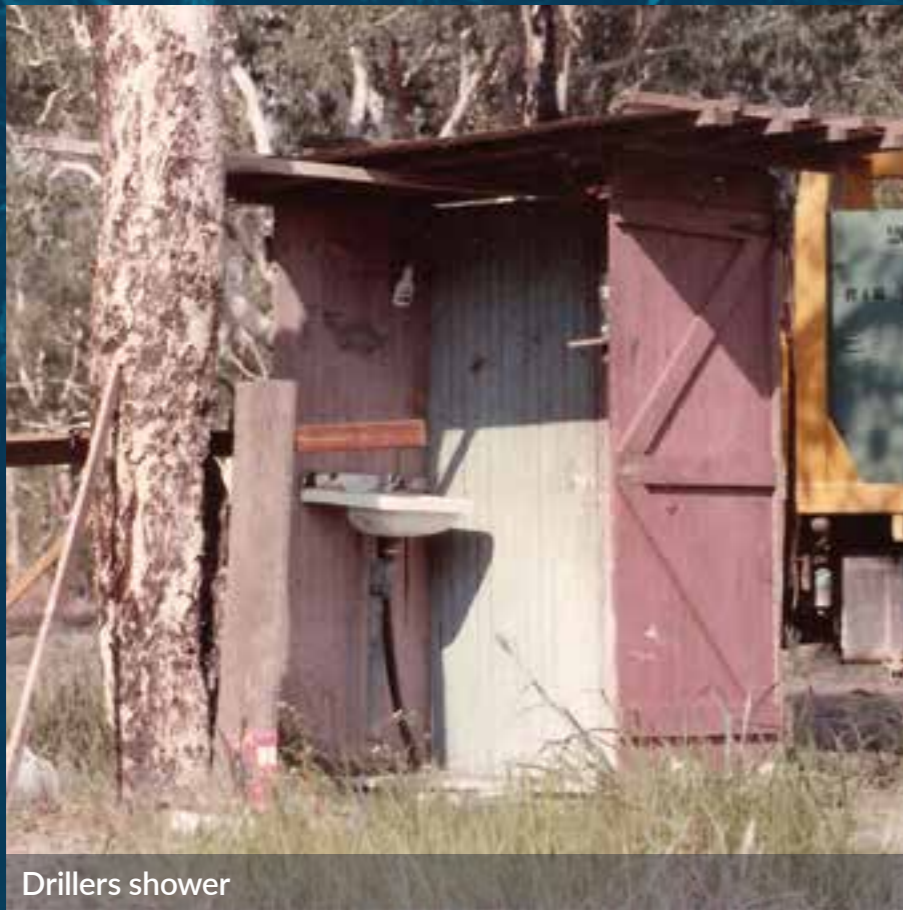
Late in the decade, the Division acquired Drilling Rigs No. 22 (first TH60 in Australia) and No. 23 (R0300), along with heavy lift cranes mounted on MAN trucks. Drilling crews often camped remotely; drill foremen earned around \$4,885/year, offsidars about \$3,000/year, with a daily camping allowance of \$1.70.

By 1977, the Division had multiple sections including Project Investigations, Hydrographic, Water Quality & Pollution, Laboratories, Groundwater Operations, Basin Management, Rural Advisory Service and Administration.

After self-government of the Northern Territory in 1978, staff transferred into the NT Public Sector, and by 1979 the Division had 315 employees: 239 in Darwin (43 at Winnellie), 59 in Alice Springs and 17 in Katherine.

The Northern Territory has its own *water story*

1980s



Drillers shower



Sounding depths on a 44 gallon float



Bogged on Mandorah Road, 1981



Winnellie Showgrounds depot, 1980



G. Russell, cnr Leichhardt and Gregory Terrace, 1988



Elcho Eylandt



Goulburn Island drillers campsite



J. Lawrie, South Alligator River, 1983

In the early 1980s, a water control district was declared around Alice Springs to manage groundwater use, while in Darwin's rural area commercial mango farming sparked the first public campaigns to protect water resources.

After a major internal review in 1982, the division was restructured and many functions moved to other agencies, reducing staff from 315 in 1979 to around 177. Between 1982 and 1983, groundwater supplies were developed for 15 remote Aboriginal communities in Arnhem Land and Central Australia.

In 1984, 60 new technical projects began including support for a cashew plantation at Wildman River Station and investigation of groundwater for a proposed resort at Kings Canyon. That same year, Cyclone Kathy destroyed the tidal recorder at Centre Island, stranded dugongs and turtles inland, and blew away the Borroloola office. Cyclone Gretel followed in April 1985 stirring floods from West Arnhem to Victoria River Downs.

A flood warning system for Alice Springs became operational in the 1985/86 wet season, with upgraded systems for Katherine and Daly Rivers tested successfully in 1986/87.

In 1987, the division merged into the Northern Territory Water Authority, and then the Power and Water Authority, combining with the Electricity Commission. By mid 1987, roughly 20,000 bores were registered in the Territory, with 122 tested or developed and 1,148 monitored regularly at 62 locations. Success rates for bores under the Water Supply Development Act were about 65% in the north and 50% in the south.

In 1988, floodplain mapping was finalized for Borroloola, the downstream Katherine region, and the Kakadu Highway corridor. Additional mapping followed for Undoolya Valley near Alice Springs and the Finniss River. Field studies on Darwin River Dam and Manton Dam began to safeguard Darwin's water supply quality.

The Northern Territory has its own *water story*

1990s



Drilling rig, 1999



Australia Day, Katherine floods, 1998



Bogged, 1998



D. Gumley, A. Sommerfeld and M. Ballard



U. Zaar, avoiding sandflies, 1996

1992 – the year the Water Act reshaped NT water management. Passed by the Northern Territory Legislative Assembly, it paved the way for 'NT Water', a strategic plan for managing the Territory's water resources, which was released for community comment.

Following the Act's implementation, appointments were made to the Water Resources Review Panel and the Drillers Qualifications Advisory Committee, and the first Northern Territory Driller Licences were issued in February 1995.

Bore drilling work increased during 1993 to reach a total of 101 bores with seventy-two being pump-tested. During 1995, No.22 Rig was used for 143 drilling days while No.23 Rig achieved 154 drilling days. This number of production days in the field had never previously been achieved by Water Resources Division.

The 1998 floods that struck Katherine triggered the mobilisation of Water Resources Division's surface water gauging crews. The crews were tasked with measuring water levels and flows under extreme conditions. The Stuart Highway outside Katherine was cut off and washed away, preventing road access.

With no local helicopter available, one was chartered from Kununurra, met at Pine Creek, and flown into Katherine. Police provided a boat, and

gauging was carried out with RAAF volunteers at the flood's peak of 20.4 metres, when the entire town was submerged. Measurements were taken in every street, recording the largest flow ever through Katherine at 7,400 cubic metres per second.

Overnight accommodation in Katherine was impossible, so crews flew back each night to Pine Creek, camping outside the Police and Emergency Services office alongside about 30 helicopters from across the Top End. People came to help from surrounding stations, including from mustering and charter companies.

Our surface water gauging team tracked the flood as it moved downstream. At Florina Station, the homestead was submerged, and residents were living in a machinery shed. One week later, the flood reached Daly River, submerging the community, including the pub.

Road access was cut, so transport was arranged via helicopter from Batchelor. At the 5 Mile, police authorised the use of one of 20 boats stranded along the flooded road. This huge effort paid off when our crews measured the highest flow to date on the Daly River at 8,000 cubic metres per second.

The Northern Territory has its own *water story*

2000s



G. Willis, Edith River, 2004



Drilling, Wadeye (formerly Port Keats)



Rig caught in floodwaters, Todd River, 2007



M. Pierson and M. Rittner, Ti Tree, 2007



Pump test



Gillispie, Lawrence, Bilich, Low and Allinson, 2003



Hydro on a boat, 2003

In the 2000s, the Water Resources Division was at the forefront of ensuring that communities, industries, and the environment across the Northern Territory had secure access to water.

Drilling programs were central to this mission, providing vital infrastructure for town water supplies, mine operations, horticultural development, and remote community needs. Wherever there was demand – whether in a growing regional centre, on a barge heading to the Tiwi Islands, or in the heart of the desert – crews were sent to get the job done.

Training and qualifications in the drilling industry were evolving at the time, but the work remained highly practical and hands-on. While formal study was not essential, skills in trades, mechanical work, and heavy vehicle operation were highly valued.

A truck licence was one of the few mandatory requirements, often obtained during the first year on the job. The focus was on building practical experience in the field, learning from senior drillers, and developing the adaptability needed to work in remote and challenging conditions.

One of the most memorable projects of the decade took place deep in the Simpson Desert at a site known as McDills. Originally drilled in the 1960s as an oil well, it had been improperly decommissioned,

leaving water to surge uncontrolled for decades. By the early 2000s, the site had transformed into a desert oasis, supporting fish, birds, camels, and plant life.

The challenge for Water Resources was to reduce the uncontrolled flow, estimated at 125 litres per second, while maintaining enough water to sustain the fragile ecosystem that had formed. The solution was to regulate the flow to just five litres per second, striking a balance between conservation and control.

Drilling in the 2000s was driven largely by practical needs: supplying water for communities, backing new horticultural farms around Katherine, supporting mines, and delivering secure bores for remote regions such as Kings Canyon.

Each project reflected the diverse demands of the Territory and highlighted the importance of reliable water infrastructure. The work of this period laid the foundations for regional growth and resilience, ensuring water resources could continue to support people, industries, and environments across the Northern Territory.

The Northern Territory has its own *water story*

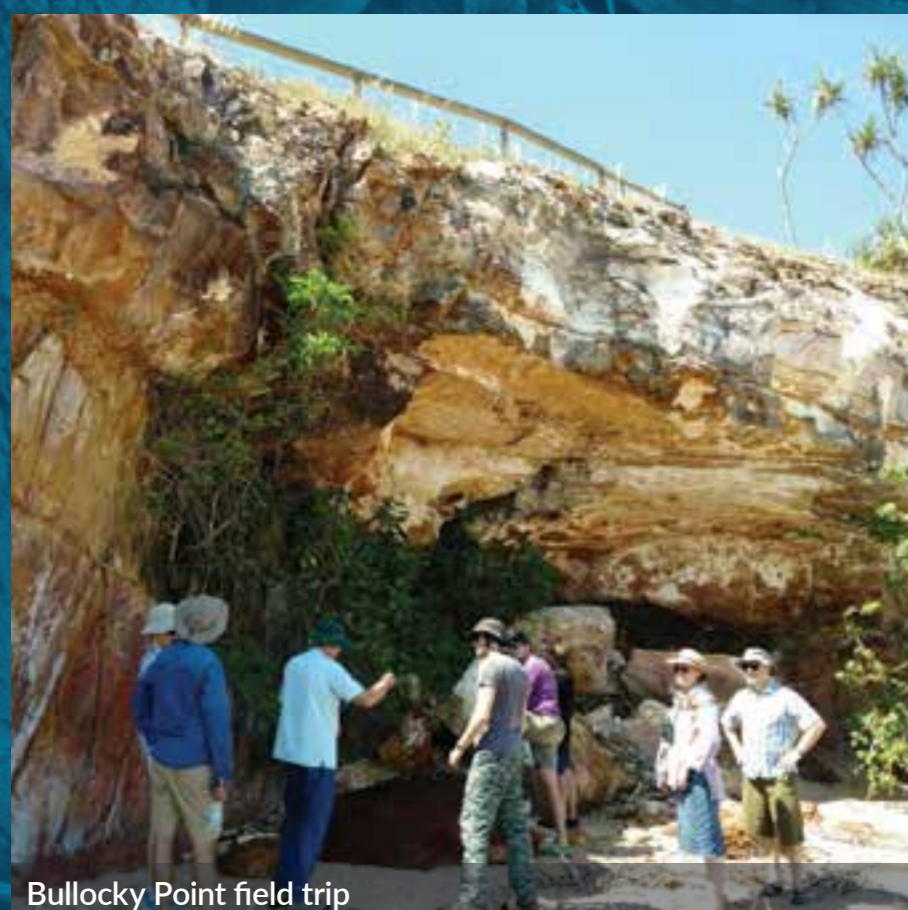
2010s



T. Howard, M. Walker, R. Henderson and R. Chapman, 2009



J. Diment, T. Howard, M. Rittner, A. Pye and D. Wakefield, World Water Day, 2011



Bullocky Point field trip



Knuckey's Lagoon field trip



Bore inspection



Water Resources working on the Ooloo Water Plan

Water Resources had a water planning focus in the 2010s. Five water allocation plans were declared in the decade:

- Western Davenport Water Control District Water Allocation Plan 2011–2021
- Alice Springs Water Allocation Plan 2016–2026 (team posing with an Alice Springs 3D model)
- Berry Springs Water Allocation Plan 2016–2026
- Katherine Tindall Limestone Aquifer Water Allocation Plan 2019–2024
- Ooloo Dolostone Aquifer Water Allocation Plan 2019–2020

The team also made significant progress on water plans for Ti Tree and Mataranka Water Allocation Plans.

Starting in 2016, the Division helped phase out the longstanding water exemption for Darwin's Rural Water Control District, previously allowing water extraction up to 15 litres per second. This change meant all commercial water users needed a licence, triggering a wave of applications and strengthening our commitment to balancing community development with sustainable water use.



Manton Dam field trip

272 water extraction licences were issued in the Darwin Rural area by 2020.

By 2017, the Division participated in an Independent Review of Water Extraction Licences to ensure our processes were fair, transparent, and consistent. The review confirmed that decisions were sound and offered recommendations to improve how we manage licences. From this, new policies were developed, such as the Prioritising Licence Applications policy, to improve transparency. That same year, the Division proudly advanced the Strategic Aboriginal Water Reserve Policy Framework, ensuring water access to support Aboriginal economic development.

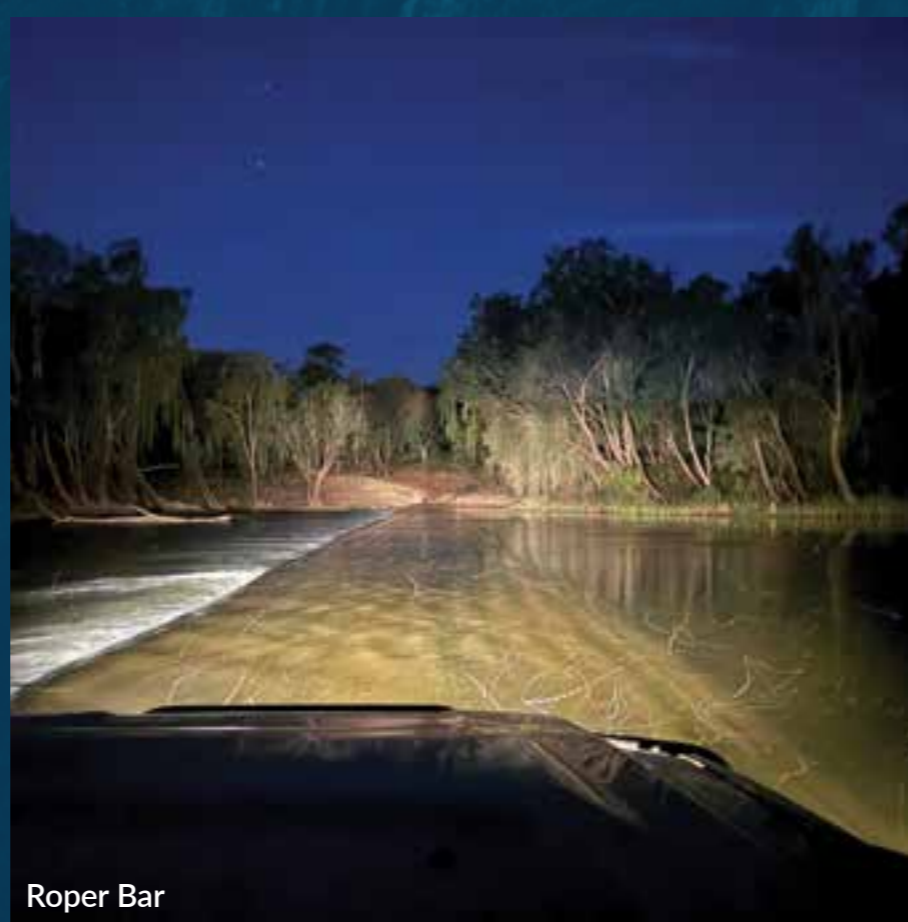
In 2019, the Division helped enshrine these protections into law, securing water for Aboriginal landholders now and in the future.

The Northern Territory has its own *water story*

2020s



SREBA monitoring



Roper Bar



Water monitoring



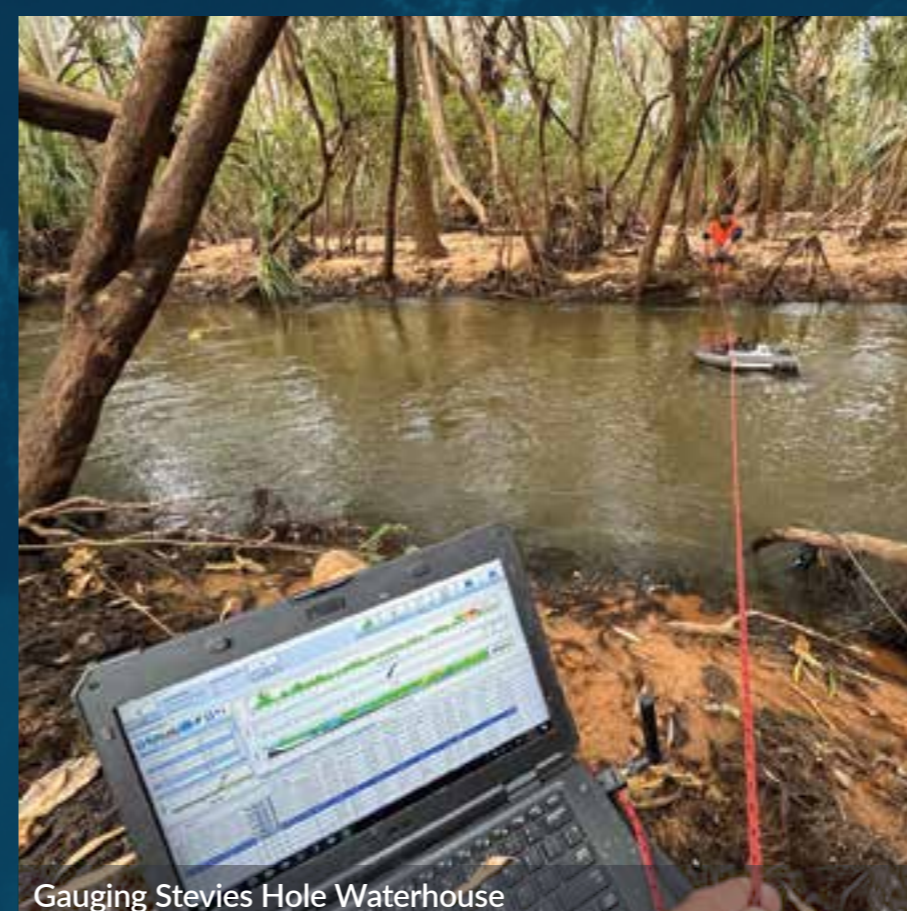
Office of Water Security award winners



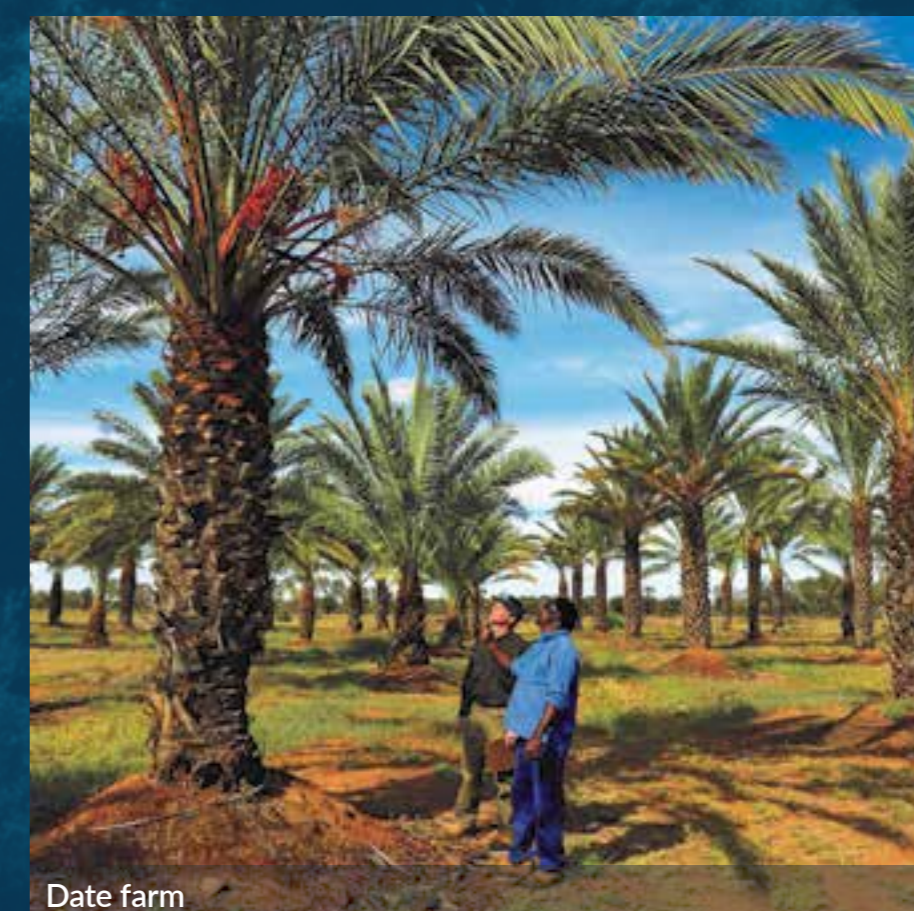
Bore inspection



Rig



Gauging Stevies Hole Waterhouse



Date farm

In 2020, the Division approved the first-ever water licence trade for the Katherine Tindall Limestone Aquifer, ensuring water management benefits local communities and improving alignment with the National Water Initiative. In the same year the NT Auditor-General recognised improvements in licensing processes, reflecting the hard work dedicated to implementing recommendations and introducing policies on water entitlement recovery and compliance.

Law reforms in 2021 brought greater certainty for industry and developers by clarifying licence terms, now up to 30 years under special circumstances, and providing a unique class of water licence for developers with a view to get land ready and subdivide in the future.

In 2023, the Division proudly launched the Territory Water Plan, the NT's first whole-of-government strategy to secure water for all Territorians, today and tomorrow. The Plan was based on extensive community engagement over the preceding years. The Division was recognised with the Australia Water Association's Organisational excellence award for the Territory Water Plan. That year also marked a milestone with the appointment of the Territory's first independent Controller of Water Resources, an important step in enhancing transparency and public trust in the work.

Water Resources Division scientists made a significant contribution to the Strategic Regional Environmental and Baseline Assessment (SREBA) which concluded in 2023. The SREBA represents Australia's most comprehensive regional baseline environmental assessment. With over 100 participants collaborating over 4 years, the focus was on the vital groundwater resources in this expansive area. The study examined key aspects of the Cambrian Limestone Aquifer, a critical resource for irrigation and agriculture. The Division published more than 15 technical reports detailing groundwater levels, quality, and interactions with surface water.