



Office of
Environment
& Heritage

Gwydir Water Resource Plan Area

**Statement of annual environmental watering
priorities 2016–17**

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Contents

Purpose of this statement	1
Gwydir Water Resource Plan Area description.....	1
Consultation.....	1
Antecedent conditions: previous watering and condition of assets	3
Forecast available water	4
Resource availability scenario and management outcomes	5
Annual environmental watering priorities.....	5
Cooperative arrangements for water delivery	8
Further documentation	9
References	9
Appendix A	10

Purpose of this statement

This statement meets the New South Wales Government's obligations to outline the annual environmental watering priorities for the Gwydir Water Resource Plan Area (WRP area) as set out in Part 4, Division 4 of Chapter 8: Environmental watering plan of the Murray–Darling Basin Plan 2012 (MDBA 2012a).

Guidelines for how to determine priorities for applying environmental water (MDBA 2012b) have been used to identify the environmental watering priorities for 2016–17 for the Gwydir WRP area.

The priorities reported here are derived from the Gwydir Valley Annual Environmental Watering Plan 2016–17.

Gwydir Water Resource Plan Area description

The Gwydir catchment covers 26,596 square kilometres, extending west from the Northern Tablelands to the Northern Plains, where it joins the Barwon River. Managed environmental water is focused on the floodplain and rivers in the area west of Moree. The Gwydir River system forms four main reaches: the Gingham watercourse, the Lower Gwydir (Big Leather) watercourse (central), the Mehi, Mallowa and Moomin systems (south) and Carole Creek (north).

These floodplain areas contain a mosaic of wetland types, from frequently inundated semi-permanent marshes and waterholes to floodplain woodlands that are inundated only during large floods.

Four sections of the wetlands in the Gwydir Valley – 'Windella', 'Crinolyn', 'Goddard's Lease', and 'Old Dromana' – are Ramsar listed. These wetlands are known as the [Gwydir Wetlands Ramsar area](#). The 'Old Dromana' Ramsar site is within the [Gwydir Wetlands State Conservation Area](#).

The Gwydir Wetlands are located in north-western NSW downstream of Moree (Map 1). Their extent, values and water requirements are described in DECCW (2011) and MDBA (2012a). These wetlands are the Country of the local Gomeroi/Kamilaroi Aboriginal people – the home of their heritage and important cultural sites and values.

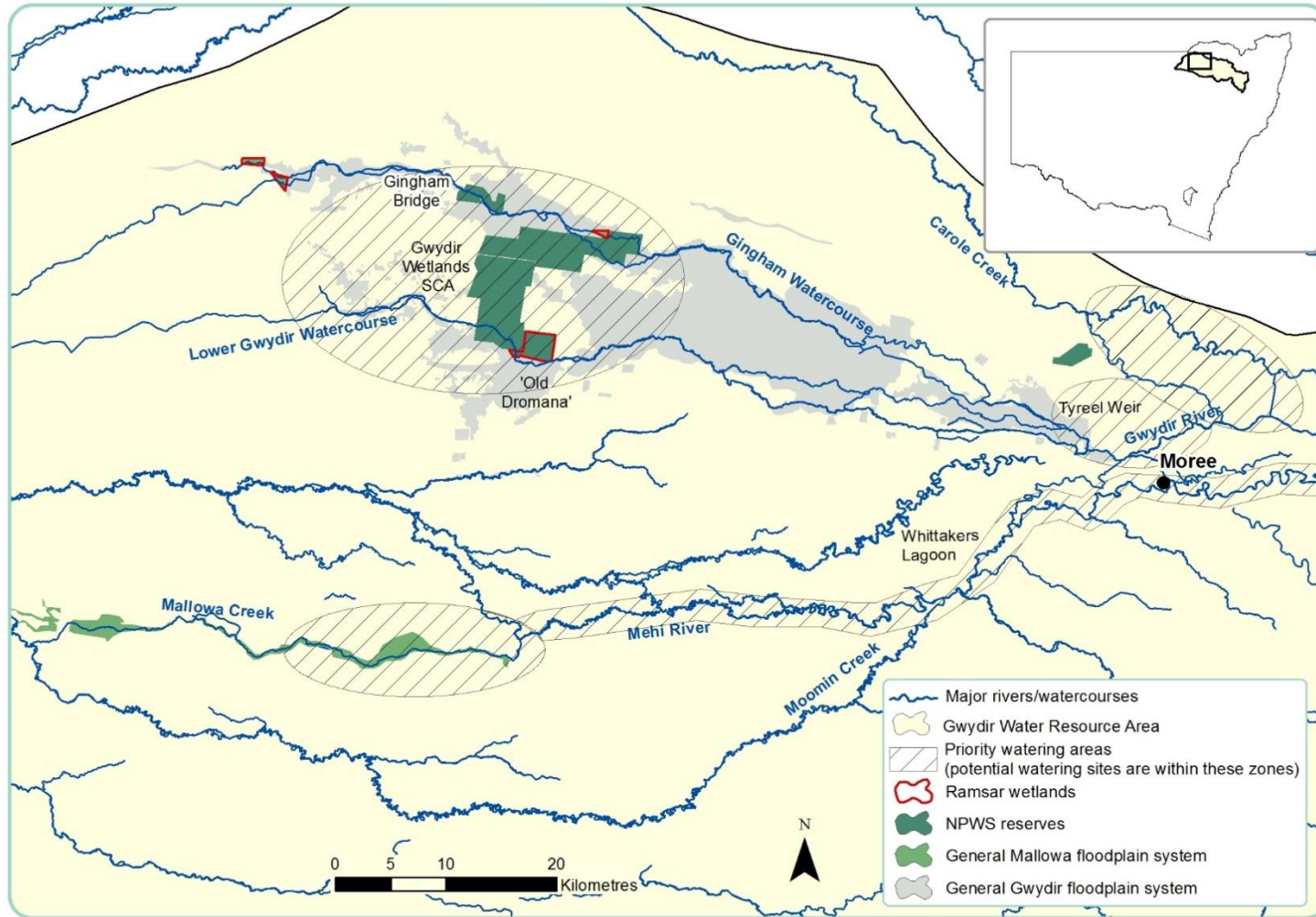
Consultation

In NSW, environmental water advisory groups are the primary vehicle for stakeholder consultation on environmental water planning for a particular WRP area. In the Gwydir area, the Environmental Contingency Allowance Operations Advisory Committee (ECAOAC), formed under the Gwydir Regulated River [Water Sharing Plan](#), provides advice on the development of the Gwydir Annual Environmental Watering Plan and seasonal issues as they arise.

The Gwydir ECAOAC has reviewed and endorsed the annual environmental watering priorities for the Gwydir WRP area. This statement on the priorities directly reflects the watering aims and objectives and the priority watering assets identified in the Gwydir Valley Annual Environmental Watering Plan 2016–17. The Office of Environment and Heritage (OEH) website has details of the [objectives and membership of the Gwydir ECAOAC](#).

Preparation of this statement also involved consultation with the Commonwealth Environmental Water Office.

Gwydir Environmental Watering Priorities Statement 2016–17



Map 1: Annual environmental watering priority areas, Gwydir WRP area, 2016–17

Antecedent conditions: previous watering and condition of assets

Overall, during the 2015–16 season, 11,150 megalitres of environmental water (as of May 2016) was delivered to the Gwydir system to benefit wetlands, rivers and creek systems. Environmental water deliveries were made specifically into the Mallowa Creek watercourse and wetlands and the Gingham and Lower Gwydir watercourse and wetlands, as well as into targeted river (Gwydir to Tyreel, Mehi to Combadello) and creek (eastern Carole Creek) sections, to provide refuge pool protection and river low flows. These deliveries were made from a combination of planned environmental water allowances, Commonwealth adaptive environmental water holdings and NSW adaptive environmental water holdings.

Low natural flows and a drying phase in 2015–16 mean that the environmental assets in the eastern parts of the Gingham, Lower Gwydir and Mallowa watercourse areas have generally remained in a stable and healthy condition. However, assets in the western areas of these watercourses have experienced a continued drying phase and are in moderate to dry condition. The upper sections of the main rivers and creeks remain in moderate condition, whereas the downstream western sections of the rivers and streams are in a dry or drying phase.

Initial indications show that the objectives and related aims for the 2015–16 season have been achieved for the Gwydir system.

As we enter the 2016–17 water season, similar dry conditions across the catchment are prevailing. Table 1 summarises environmental water use in 2015–16.

Table 1: Gwydir environmental water releases, 2015-16

Asset	Total volume¹	Outcomes	Current condition
Gingham Watercourse and Wetlands	1350ML plus a portion of low natural river flows, with total flows for the year 18,000ML at Tillaloo (additional volume to be advised if required to complete event)	Moderate inundation of the eastern portion of the Gingham wetlands. Limited inundation of some western portions.	Drying phase: moderate to good condition in the eastern portion and moderate to declining condition in the western portion.
Lower Gwydir Watercourse and Wetlands	1350ML plus a portion of low natural river flows, with total flows for the year 18,000ML at Millewa	Moderate inundation of the eastern portions of the Lower Gwydir wetlands. Limited inundation of some western portions.	Drying phase: moderate to good condition in the eastern portion and moderate to declining condition in the western portion.
Mallowa Creek and Watercourse and Wetlands (off Mehi River)	3486ML with total flows for the year 4500ML	Moderate inundation of around 50% of the eastern and mid portions of the Mallowa system.	Drying phase: moderate to good condition in the eastern portion and moderate to declining condition in the western portion.

Asset	Total volume¹	Outcomes	Current condition
Mehi River (refuge pool protection and river low flows to protect fish populations and in-stream health)	3064ML (additional volume to be advised if required to complete event)	Protection of fish populations and aquatic health in the Mehi River (Tareelaro to Combadello) during extensive drying.	Refuge pools protected, with improving condition from Tareelaro to Combadello. Western sections dry or drying.
Carole Creek (refuge pool protection and river low flows to protect fish populations and in-stream health)	409ML	Protection of fish populations and aquatic health in eastern Carole Creek during extensive drying.	Refuge pools protected, with improving condition in the eastern section. Dry central and western sections.
Gwydir River (refuge pool protection and river low flows to protect fish populations and in-stream health)	3400ML	Maintained low-flow connection to support Gwydir river systems during extended low- or no-flow periods.	Refuge pools connected and protected: 40 to 50 days after flow had ceased, refuge pools were protected and improving.

¹ Interim volume (in megalitres (ML)) until otherwise confirmed

Forecast available water

The outlook from the Bureau of Meteorology reflects a combination of a weakening El Niño, very warm Indian Ocean temperatures and warm sea-surface temperatures around much of the Australian coast. The climate outlook can be viewed at the [Bureau of Meteorology website](#).

Should this outlook prove correct, there may be an increased chance of rainfall across the catchment through winter and into early spring.

Nevertheless, annual water planning with the Gwydir ECAOAC has indicated a preference for a more conservative approach to water management, while retaining the flexibility to respond to improved rainfall and river-flows if they do occur throughout the season.

Therefore, water-use predictions for the coming water year are based on an initial scenario for dry to medium water availability (Table 2).

The figures given in Table 2 have not been adjusted for possible future trade. OEH periodically trades water allocations to cover a proportion of the water-use charges associated with NSW environmental water holdings. The volume of environmental water traded in a WRP area is determined by the price in the local market and the targeted level of cost recovery. OEH manages the trade of NSW environmental water holdings on the basis of environmental water demand and trading opportunities across the Murray–Darling Basin, taking into account equity among WRP areas over time.

Table 2: Anticipated environmental water availability, Gwydir WRP area

Source	Maximum volume	Volume expected to be available at 1 July 2016 ¹
<i>Planned environmental water allowances</i>		
Environmental contingency allowance	45,000ML to 90,000ML	56,420ML ²
<i>NSW licensed adaptive environmental water holdings</i>		
General security	17,092ML	1668ML
Supplementary ³	3140.5ML	Event-dependent
High Security	1249ML	1249ML
<i>Commonwealth licensed adaptive environmental water holdings</i>		
General security	89,525ML	19,910ML
High Security	600ML	600ML
Supplementary ³	19,100ML	Event-dependent

¹ In addition to 'current available', the forecast annual long-term return is 41% for general security and 43% for supplementary under a medium resource availability scenario.

² 15,000ML will be set aside to support bird breeding events if required.

³ Supplementary access depends on the announcement of supplementary water releases.

Resource availability scenario and management outcomes

The resource availability scenario is based on surface water availability and antecedent conditions (Appendix A: Table A1). In the Gingham, Lower Gwydir and Mallowa watercourse and wetlands systems, the antecedent conditions are currently low to medium. With the recent Bureau of Meteorology forecast potential for increased rainfall, together with the water availability from the past 2015–16 season, OEH continues to plan for low to medium in 2016–17, so the resource availability scenario is dry.

With the resource availability scenario dry, the management outcome for the water year is first to maintain the ecological health and resilience of wetlands and rivers and then to ensure that, in the event of dry conditions, the environmental assets will be maintained to support basic functions and resilience (Appendix A: Table A2).

Annual environmental watering priorities

The Gwydir ECAOAC has proposed that no proactive watering will occur occurring during 2016–17. This approach acknowledges that naturally drying phases are an important part of wetlands system functioning, and that carrying over a portion of environmental water to support rivers and wetlands in future seasons is an important strategy.

Gingham and Lower Gwydir Watercourse and Wetlands: The proposal is for no proactive watering. However, in the event that substantial rainfall and river flows do

Gwydir Environmental Watering Priorities Statement 2016–17

occur during the water season and result in a supplementary flow event, deliveries may be made into the Gwydir system.

These deliveries may total up to 10,000 megalitres over the delivery period, in addition to water taken under supplementary access licences held by the Commonwealth and NSW governments (see Table 3).

On the basis of advice from landholders, the winter harvest will be taken into consideration through regular contact with these stakeholders.

Table 3: Gwydir watering site priorities under a dry resource availability scenario, 2016–17

Target area	Location	Estimated volume	Rationale, timing and duration
Lower Gwydir and Gingham watercourse and wetlands system	<p>Lower Gwydir in the following order of watercourse flow paths and wetlands: 'Old Dromana' Ramsar subsite; 'Old Dromana', 'Belmont'; 'Retreat', 'Wondoona', Wondoona/Troy Waterhole, the Gin Holes</p> <p>Gingham Watercourse in the following order of flow paths: The Raft, small wetlands from the Raft to The Gully, Jackson Paddock on The Gully; 'Wayholme', Wayholme West, 'Westholme'; 'Bunnor' east and Moolabulla with 'Goddard's Lease' Ramsar subsite; 'Bunnor' west, 'Lynworth', 'Yarrol', Gingham Waterhole; 'Munwonga', 'Glendara' lignum stand; Little, Racecourse and Pear Paddock lagoons; Boyanga Waterhole; 'Old Boyanga'; 'Curragundi' and 'Molladree'; and the 'Crinolyn' and 'Windella' Ramsar subsite, as well as the flow paths to and below these sites.</p> <p>North Gingham Flow Path.</p> <p>Talmoi, Tillaloo and Baroona lagoons (receive flows only under larger events).</p>	<p>Up to 10,000ML general security and environmental contingency allowance.</p> <p>Up to 14,100ML supplementary access licence.</p>	<p>Nil proactive watering.</p> <p>Reactive to upstream natural-flow triggers only (using supplementary events to mimic unregulated flows).</p>
Mallowa Creek and Wetlands (off Mehi River)	<p>Mallowa Creek downstream of Mehi River off-take at the Mallowa regulator in the following order: 'Coombah', 'Gundare', 'Rosedale', 'Valetta', 'Bungunyah', and Kamilaroi West, through 'Kinimindi' and 'Dunbar', 'Burrigillo', 'Currotha', 'Baroona', and 'Box Ridge' flow paths and wetland areas.</p>	<p>Up to 5000ML general security.</p> <p>Up to 5000ML supplementary access licence.</p>	<p>Nil proactive watering.</p> <p>Reactive to upstream natural-flow triggers only (using supplementary events to mimic unregulated flows).</p>
Native fish communities	Mehi River:	Nil allocation in response to dry	As per committee endorsement, nil

Gwydir Environmental Watering Priorities Statement 2016–17

Target area	Location	Estimated volume	Rationale, timing and duration
and aquatic health within the Mehi River system and the Carole Creek system	<p>Primary target: Tareelaroï regulator to Gundare regulator</p> <p>Secondary target: Gundare regulator to Mehi River near Collarenebri.</p> <p>Carole Creek:</p> <p>Primary target: Carole Creek offtake to near Garah.</p> <p>Secondary target: Carole Creek near Garah to confluence with Gil Gil Creek near Weemelah.</p>	<p>conditions and low allocations.</p> <p>Note: Under improved moderate/high allocations there may be flows for aquatic communities during the 2016–17 season.</p>	<p>deliveries during 2016–17 seasons under a dry scenario.</p> <p>Under a moderate/high scenario, the specific timing, size and hydrographic nature of flow deliveries will be developed when natural flow triggers are met for those systems.</p>
Main Gwydir River, Lower Gwydir and Gingham watercourse drought-refuge pools	<p>Gwydir River from downstream of Copeton Dam to Tareelaroï Weir.</p> <p>Tareelaroï Weir to Tyreel Weir.</p> <p>Tyreel Weir and downstream Gingham channel.</p> <p>Gwydir River downstream of Tyreel regulator to Brageen Crossing.</p>	<p>Up to 8000 ML general security or environmental contingency allowance.</p>	<p>During periods of extreme river drying, environmental deliveries may be made to river drought-refuge sites and/or larger refuge pools to prevent them from drying down completely and to provide connectivity downstream.</p>
<p>Mehi River drought refuge pools</p> <p>Carole Creek drought refuge pools</p>	<p>Tareelaroï regulator to Combadello Weir and refuge pools immediately downstream.</p> <p>Carole Creek regulator and refuge pools including Garah (i.e. Midkin, Lagoon, Inglewood Forest areas).</p>	<p>Portion of volume above the (8000ML) general security or environmental contingency allowance (as per action described above).</p>	<p>During periods of extreme river drying, environmental deliveries may be made to river drought-refuge sites and/or larger refuge pools, to prevent them from drying down completely and to provide connectivity downstream.</p>

Note: Volumes attributed to usages are estimates only. All environmental water deliveries into the Lower Gwydir, Gingham or Mallowa watercourses and wetlands will acknowledge local farming land uses at the time of delivery. The aim will be to minimise disturbance to floodplain farming activities as far as is practicably possible.

Mallowa Creek: Similar to the Gingham and Lower Gwydir. Given that the Mallowa Watercourse has received a succession of water deliveries (from the flooding in 2011–12, followed by three seasonal waterings), the restoration program for this system is now complete. Under a dry scenario, no proactive watering will occur

during 2016–17. This approach acknowledges the natural drying phases that are an important part of wetlands system functioning.

However, in the event that substantial rainfall and river flows do occur during the season and supplementary access is announced, a delivery may be made into the system. These deliveries may total up to 5000 megalitres for the period, in addition to water that may be taken under a supplementary access licence. On the basis of advice from landholders, consideration will be given to the winter wheat crop harvest.

Mehi River and Carole Creek: The Gwydir ECAOAC decision is to not provide flows in support of the aquatic ecology and native fish in the Mehi River and Carole Creek systems. Ultimately, the ECAEOC acknowledged the potential to carry over more water for use at a later season under a continuing dry scenario. Under the principles of protecting the aquatic ecosystem from prolonged river drying, the Mehi River and Carole Creek community will be protected by this approach.

However, under improved moderate/high allocations there may be flows for aquatic communities during the 2016–17 season.

River drying and low flows: Under very dry conditions and very low river flows, environmental water deliveries (up to 8000 megalitres) may be made to provide low connecting flows to key refuge pools in the Gwydir River, upper Mehi River and upper Carole Creek sections.

Environmental water reserves: All unused environmental water is held in Copeton Dam as carryover to meet future environmental watering needs. The ECAOAC has recently undertaken specific water planning to ensure that all water reserves are best utilised to support key water-dependent assets for the period 2016–17 through to 2017–18, given the possibility of a continuing dry to very dry scenario of seasons occurring over the next 2 to 3 years.

The Gwydir ECAOAC has committed to reviewing its future water use for the environment in line with its annual planning phase as conditions and water availability change. Individual watering events are approved and implemented via the current [NSW environmental water planning and operational framework](#).

Cooperative arrangements for water delivery

OEH is the leading environmental manager for NSW and coordinates environmental watering with advice from the relevant environmental water advisory group in each WRP area. OEH has negotiated cooperative arrangements with the Commonwealth Environmental Water Office and WaterNSW to maximise the benefits of environmental water use in NSW.

OEH has also developed strong partnerships with Local Land Services, irrigator groups and landholders to ensure the efficient and effective delivery of environmental water. In some circumstances, this may include the use of private infrastructure to water wetland targets, as well as cooperative changes to land management to ensure that desired ecological responses to watering are achieved.

Further documentation

Reporting on water used throughout the 2016–17 watering season will be included in OEH's *Environmental Water Use in NSW: Outcomes 2016–17* and also in the Commonwealth's *Annual Report 2016–17: Commonwealth environmental water*, both of which will be available in late 2017.

References

DECCW 2011, *Gwydir Wetlands Adaptive Environmental Management Plan – Synthesis of information projects and actions*, NSW Department of Environment, Climate Change and Water, Sydney,
www.environment.nsw.gov.au/resources/water/environmentalwater/110027gwydiraemp.pdf

MDBA 2012a, *Basin Plan*, Murray–Darling Basin Authority, Canberra,
<http://www.mdba.gov.au/basin-plan>

MDBA 2012b, *Guidelines for the method to determine priorities for applying environmental water*: Murray–Darling Basin Authority, Canberra,
<http://www.mdba.gov.au/sites/default/files/archived/alterred-PBP/APBP-Ch7-Guideline.pdf>

Appendix A

Table A1: Determining the resource availability scenario

Surface water availability	Antecedent conditions				
	Very dry	Dry	Medium	Wet	Very wet
Very low	Very dry	Very dry	Dry	Dry	n/a
Low	Very dry	Dry	Dry	Moderate	Wet
Medium	Dry	Dry	Moderate	Wet	Wet
High	Dry	Moderate	Wet	Wet	Very wet
Very high	n/a	Moderate	Wet	Very wet	Very wet

Source: Modification of table in 'Guidelines for the method to determine priorities for applying environmental water' in the Murray–Darling *Basin Plan* (MDBA 2012b), using ranges for water availability and antecedent conditions rather than the percentile ranges (15 points in each band) used in the plan

Table A2: Management outcomes for each resource availability scenario

	Resource availability scenario				
	Very dry	Dry	Moderate	Wet	Very wet
	Avoid irretrievable loss of, or damage to, environmental assets	Ensure environmental assets maintain their basic functions and resilience	Maintain ecological health and resilience	Improve the health and resilience of water-dependent ecosystems	Improve the health and resilience of water-dependent ecosystems
Management outcome	Avoid critical loss of species, communities and ecosystems. Maintain critical refuges. Avoid irretrievable damage or catastrophic events. Allow drying to occur, where appropriate, but relieve severe, unnaturally prolonged dry periods.	Support the survival and viability of threatened species and communities. Maintain environmental assets and ecosystem functions, including allowing drying to occur, consistent with natural wetting-drying cycles. Maintain refuges.	Enable growth, reproduction and small-scale recruitment for a diverse range of flora and fauna. Promote connectivity of low-lying floodplains and rivers. Support medium-flow river and floodplain functions.	Enable growth, reproduction and large-scale recruitment of a diverse range of flora and fauna. Support high-flow river and floodplain functions.	Enable growth, reproduction and large-scale recruitment of a diverse range of flora and fauna. Support high-flow river and floodplain functions.

Source: Modification of table in 'Guidelines for the method to determine priorities for applying environmental water' in the Murray–Darling *Basin Plan* (MDBA 2012b), with the objective 'Promote higher floodplain–river connectivity' removed from the wet and very wet scenarios