

North Esk River Catchment Water Management Overview

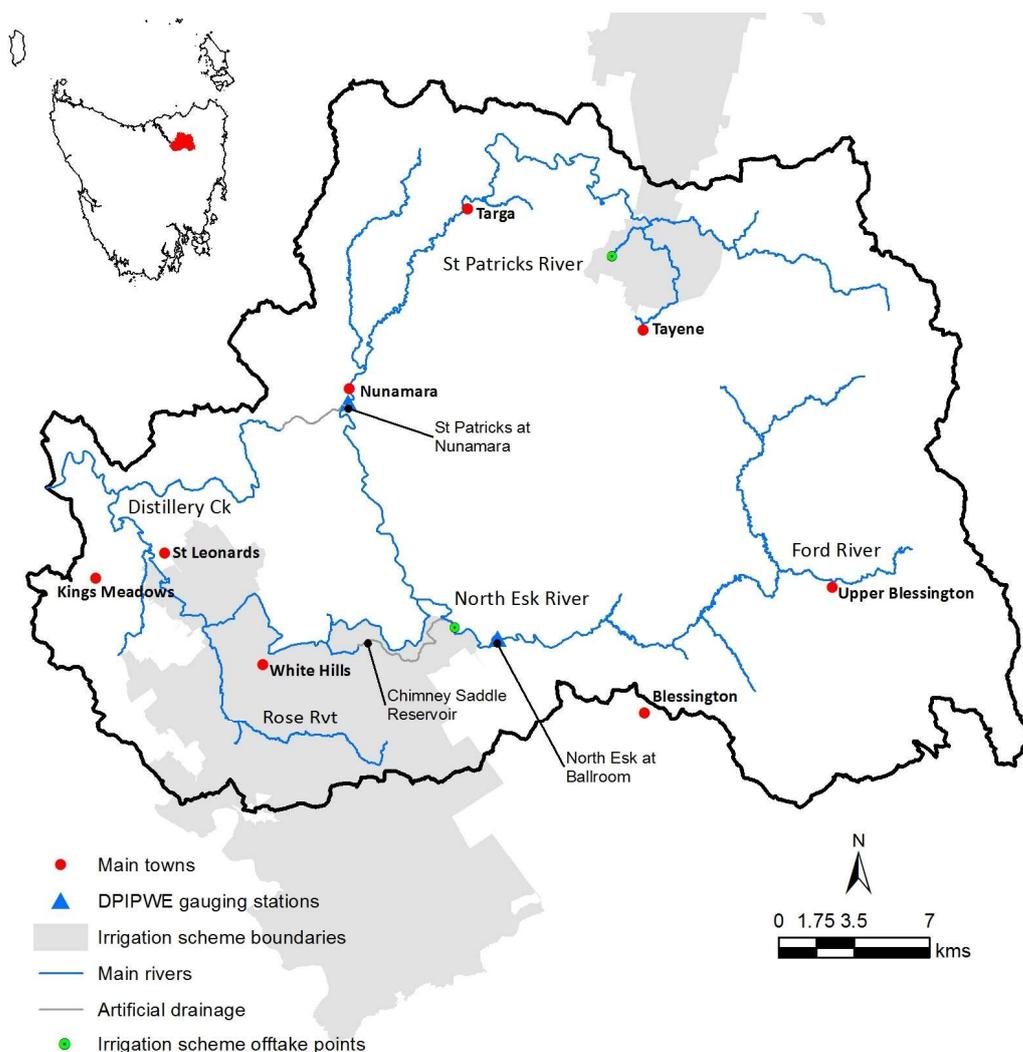
September 2019

The North Esk River catchment has an approximate area of 1,065 km². The two main rivers in the catchment are the North Esk River (91 km long) and the St Patricks River (68 km long). Both rivers originate on the western slopes of Ben Nevis. The St Patricks River joins the North Esk River west of Ballroom before flowing into the Tamar Estuary at Launceston.

The North Esk and St Patricks rivers form a part of the water supply for the City of Launceston. They are also popular rivers for recreational fishing, swimming and kayaking, and related events.

There is significant urban development in the lower catchment while the rest of the catchment is used for grape growing for wine, vegetable seed, small-seed cereal and fodder production, livestock grazing and plantation forestry.

The river system provides habitat for a range of flow-dependent flora and fauna, including aquatic and riparian vegetation, macroinvertebrate communities, frogs, fish, waterbirds, platypus and some threatened species.



Quick Facts

- Annual rainfall is 1,300 mm in the upper catchment and 750 mm in the lower catchment.
- Long term average yield from the catchment is 167,094 ML per year.
- Water available for allocation is approaching allocation limits in winter and there is no further allocation available in summer.
- There is currently 70,588 ML of water allocated in the catchment, of which TasWater has 20,500 ML, Scottsdale Irrigation Scheme has 9,300 ML and North Esk Irrigation Scheme has 7,000 ML.
- Our records show there are 44 potentially operating water bores.
- Threatened species that rely on stream flow include the Australian grayling, giant freshwater crayfish, South Esk heath and Ouse River caddisfly.

SURFACE WATER MANAGEMENT IN THE NORTH ESK RIVER CATCHMENT

Allocation Information

In total 70,588 ML of water is allocated in the North Esk catchment of which 33,060 ML is allocated in winter, 1,118 ML is allocated in summer and 33,210 ML of full year allocation. Of this 16,428 ML is allocated for purposes classed as non-consumptive (aquaculture and hydropower).

Town water supply accounts for 20,500 ML (38%) of the consumptive water use of which 11,333 ML is allocated at Surety 1 and 12,666 ML at Surety 5. TasWater has a large diversion channel that extracts water from the St. Patricks River near Nunamara and another extraction point from the North Esk River at Chimney Saddle.

Irrigation accounts for 56% of the consumptive water use of which 16,300 ML (30%) is allocated to provide water to the the North Esk Irrigation Scheme and the Scottsdale Irrigation Scheme.

Tasmanian Irrigation began to extract water for the North Esk Irrigation Scheme in December 2018.

Extraction from the upper reaches of the St Particks River for the Scottsdale Irrigation Scheme will start in December 2019.

Under the Department's allocation framework the North Esk River catchment is assessed to be fully allocated in summer and approaching allocation limits in winter¹.

Taking of Surface Water

All surface water for commercial use is taken under a licence issued under the *Water Management Act 1999* (the Act). Water licences are endorsed with water allocations that typically state:

- the volume of water that can be taken,
- when it can be taken (a period amount, usually summer or winter);
- surety (reliability) of the allocation;
- from which location; and

- other relevant conditions regarding how water can be taken.

Water licences in the catchment allow the taking of water in two take periods; summer (typically low flows) and winter (high flows), although some full year aquaculture and TasWater allocations spread across both seasons. The summer take period is generally 1 December (sometimes 1 November) to 30 April and winter is 1 May to 30 November (sometimes 31 October).

For more information about water licences please visit: dpipwe.tas.gov.au/water/water-licences.

Restriction protocols and cease to take thresholds (CTT) are applied across the North Esk River catchment when flow in the rivers become extremely low. See Table 1 below.

Table 1 Daily restriction management thresholds in the North Esk River catchment.

North Esk River at Chimney Saddle (below Tas Water and Tasmanian Irrigation offtakes).

ML/day	Stage	%	Restriction	Comment
17	1	100	Ban on surety 6 direct takes	Calculation to Ballroom = 40 ML/day
10	2	100	Ban on surety 5 direct takes	Calculation to Ballroom = 35 ML/day
10	3		Tas Water surety 5	Calculation to Ballroom = 30 ML/day

St Patricks River at Nunamara.

ML/day	Stage	%	Restriction
17	1	50	Ban on surety 5 direct takes
10	2	100	Ban on surety 5 direct takes
10	3		Tas Water surety 5 restriction
<10 for 5 days	4	100	Ban on surety 5 TasWater

¹ The allocation framework calculates the volume of water available and aims to protect existing water users and environmental requirements.

For more information see: dpipwe.tas.gov.au/Documents/Surface%20Water%20Allocation%20Decision%20Framework.pdf

Streamflow Monitoring

The Department monitors flow in the North Esk River at Ballroom and at Chimney Saddle, and in the St Patrick's River at Nunamara (see map for locations). This information is used to manage river flows and the taking of water in the catchment.

Instantaneous flow data is available on the Department's Water Information Tasmania Web Portal:

portal.wrt.tas.gov.au/



Figure 1 North Esk River at Corra Linn.

River Flow Characteristics

Annual rainfall ranges from 1,300 mm in the headwaters of the catchment to about 750 mm in the lower catchment near Launceston. The river exhibits a strong seasonal flow pattern with high flows in winter-spring and low flows in summer, with potentially large monthly, seasonal and annual variations due to varying climatic conditions (Fig. 2a). Because of this seasonal flow pattern, most of the river's annual yield (total discharge) occurs during 'winter' (May-November) (Fig. 2b).

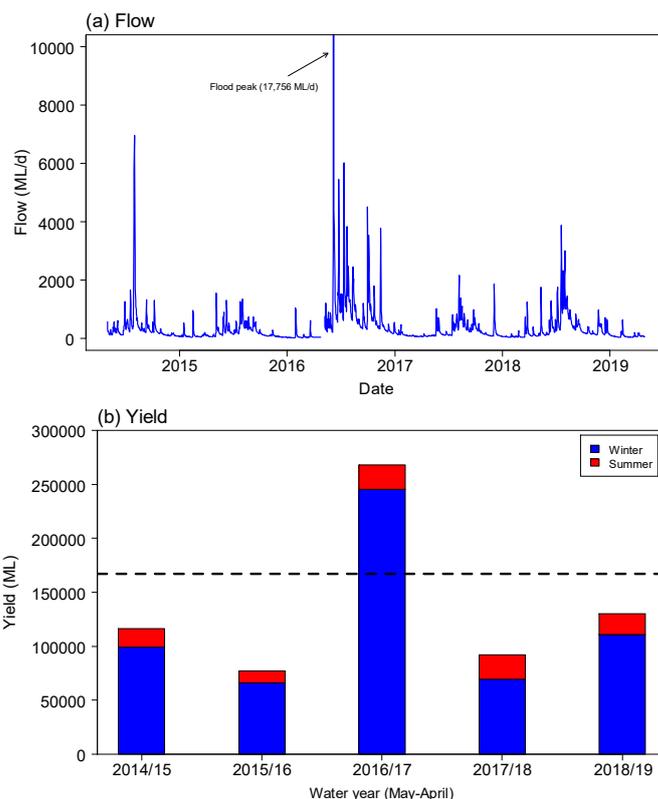


Figure 2 (a) Flow and **(b)** yield during the last five water years in the North Esk River at Ballroom. The long-term average yield (167,094 ML; dashed line) is shown with the yield data.

Rainfall, Streamflows and Flow Management

Rainfall and flow patterns during the dry summer of 2015/16 provide an example of how rainfall influences flow in the North Esk River, and how flow is managed using restriction protocols and cease-to-take (CTT) thresholds by the Department. Figure 3 shows that during 2015/16, baseflows were quite low at times and fell below the daily restriction threshold (CTT) of 35 ML/d for approximately 19 days. Occasional rainfall events increased baseflows in the river and alleviated the need for prolonged restrictions during this season.

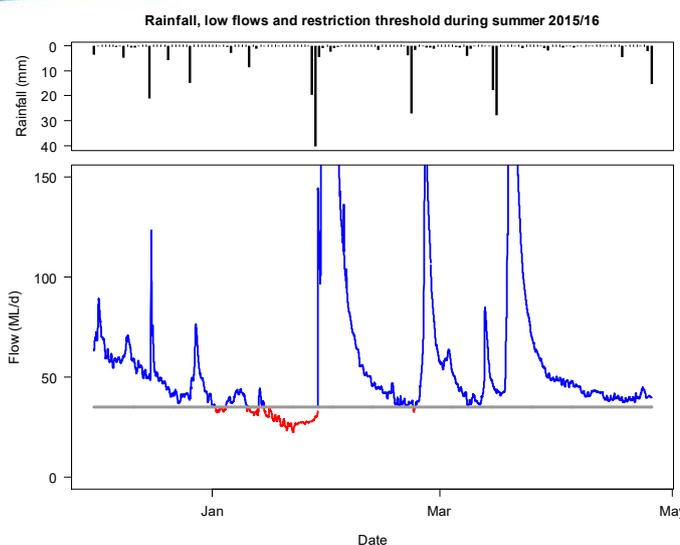


Figure 3 Rainfall and low flows in the North Esk River at the Ballroom streamflow gauging station during summer 2015/16 (December 2015 to April 2016). The cease-to-take (CTT) threshold (35 ML/d; grey line), and flows above (blue line) and below (red line) the CTT are indicated.

River Health

DPIPWE monitors river health at four long-term sites in the catchment. This monitoring uses waterbugs as indicators of condition, and also assesses habitats and water quality. Monitoring between 1994 and 2018 indicates that the mid to upper reaches of the North Esk and St Patricks rivers are in good condition, whereas the lower reaches of the North Esk River are in moderate condition.

GROUNDWATER MANAGEMENT IN THE NORTH ESX RIVER CATCHMENT

Groundwater Regulation

Currently under the Act groundwater may be taken in the North Esk River Catchment as a Part 5 right without a water licence.

The Department is responsible for managing groundwater in the North Esk River catchment under the provisions of Part 7 of the Act. Although no water licence is required to take groundwater a permit is required to construct a bore or well.

Groundwater Resources

Based on current available drilling records, development of groundwater resources within the North Esk River catchment is considered to be low. Bores are mainly located in the area between Launceston and Ballroom (56 of 79 bores). The remainder of the bores are located between Nunamara and Targa. Of the 79 recorded bores in the North Esk catchment, 8 are recorded as operating, 31 are capped (16 of them are Launceston Airport monitoring bores), 19 are abandoned and 21 have unknown operating status in the DPIPWE's groundwater database (GWIMS).

Bores typically have variable yields, but are largely less than 5 liters per second, with water quality usually suitable for irrigation, domestic and stock use.

Larger, irrigation volumes may potentially be available in localised areas of highly fractured sedimentary Silurian-Devonian Mathinna and Permo-Triassic rocks and Tertiary Basalt aquifers.

For further information regarding groundwater resources, bore locations and the well work permitting process, please visit:

dipwe.tas.gov.au/water/groundwater