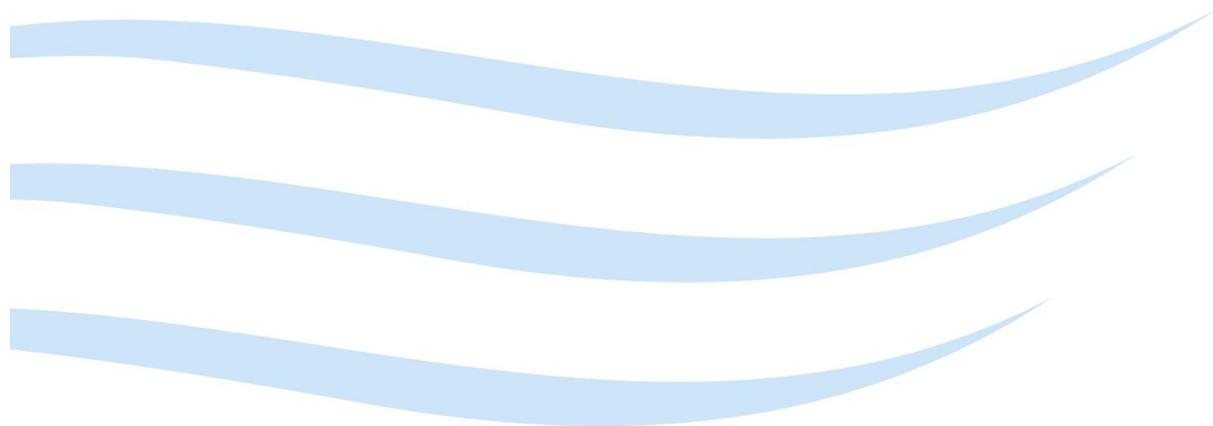


# **Forth-Wilmot River Catchment Water Management Statement**



**June 2016**

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The Department of Primary Industries, Parks, Water and Environment provides leadership in the sustainable management and development of Tasmania's natural resources. The Mission of the Department is to support Tasmania's development by ensuring effective management of our natural resources.

The Water and Marine Resources Division provides a focus for water management and water development in Tasmania through a diverse range of functions, including implementing the *Water Management Act 1999* and the National Water Initiative; design of policy and regulatory frameworks to ensure sustainable use of surface water and groundwater resources; monitoring, assessment and reporting on the condition of the State's freshwater resources; and providing regulatory and policy support for water infrastructure development projects.

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## 1 INTRODUCTION

The Forth-Wilmot River Catchment Water Management Statement (this Statement) sets out how water in the Forth-Wilmot River catchment (this catchment) is allocated and the rules for taking water. This Statement describes a water regime that supports the objectives of the [Water Management Act 1999](#) (the Act) and is consistent with the planning principles of the [National Water Initiative \(NWI\)](#).

Water Management Statements are being developed for a number of river catchments around the State. The document 'Water Management Statements – Background Information' (DPIPWE 2016) provides generic information about these statements including links to relevant information and government policies that describe how the Tasmanian Government applies policies to make decisions and administer water in these catchments. These management policies and guidelines are underpinned by the rationale that key characteristics of the natural flow regime should be retained as far as possible to maintain ecosystem values and functions.

The hydrology of the Forth-Wilmot Catchment is recognised as being highly regulated by hydro-electric power developments. Therefore, while there is a departure from the natural flow regime, the aim is to recognise the current management context and maintain, as far as practicable, the remaining hydrological components to sustain the existing ecological functions and structure of the system.

The outcomes sought through the implementation of the described water management arrangements in this Statement are:

- to provide certainty in water availability for commercial users, while ensuring town water supply and stock and domestic use
- to provide stream flows to support existing freshwater-dependent environmental values

This Statement draws on information and data from a range of sources including assessments of freshwater-dependent ecosystem values and analyses of hydrology and water allocations (refer to Appendix A for details).

## 2 WATER MANAGEMENT ENVIRONMENT

### 2.1 Water Management Roles and Responsibilities

All rights to the taking of water from the water resources of Tasmania are vested in the Crown, with the exception of those rights provided under Part 5 of the Act.

Water management arrangements in the Forth-Wilmot River catchment involve several entities. Among those are administrators of water within five Water Districts, including two irrigation water districts and three hydro-electric water districts (regions shown in Figure 1). Appendix B outlines the key roles and responsibilities regarding water management in the catchment.

The rights to water resources (other than those resources already allocated to other licenced water users) upstream of Lake Palooona and Lake Gairdner are managed by Hydro Tasmania for hydro-electric power generation in areas defined by a number of hydro-electric water districts (refer to Figure 1). Once water has passed downstream of Lake Gairdner (Wilmot Dam) and Lake Palooona (Palooona Dam), Hydro Tasmania no longer holds the rights to the water. Accordingly, the rights to any water in the Lower Wilmot and Lower Forth River below Lake Palooona, that are not otherwise allocated, are vested in the Crown for administration in accordance with the Act.

However, it should be recognised that flows in the Lower Wilmot River and Lower Forth River are significantly dependent upon releases from the hydro-electric water districts related to Hydro Tasmania's operation's in accordance with its special licence and commercial imperatives as an energy generator.

### **3 DESCRIPTION OF WATER RESOURCES IN THIS CATCHMENT**

#### **3.1 Catchment Overview**

The Forth-Wilmot River catchment is located in north-central Tasmania and has an area of approximately 1180 km<sup>2</sup> (Figure 1). The two main rivers in the catchment are the Forth and Wilmot Rivers. Flow in this system is modified by hydro-electricity developments associated with the [Mersey-Forth Power Scheme](#).

Rainfall in the catchment is highly variable, largely due to changes in elevation. In the lower catchment, rainfall is about 1000 mm/year, while Cradle Valley, at an altitude of 1545 m, has a rainfall of about 2800 mm/year.

The catchment straddles three Local Government municipalities: the Central Coast Municipality, the Kentish Municipality and the Central Highlands Municipality. There are a number of small towns within the catchment including Turners Beach, Leith, Forth and Wilmot.

The flow regime in many parts of the Forth-Wilmot catchment have been modified due to hydro-electric power generation since Hydro Tasmania began commissioning the Mersey-Forth power scheme in 1968. The Forth River contains three major hydro-electric impoundments (Lake Cethana, Lake Barrington and Lake Paloona). Lake Paloona is at the bottom of the system and discharges water into the lower Forth River about 13 km upstream of the tidal limit before flowing into the sea at Turners Beach.

In the upper Wilmot River, water is impounded at Lake Gairdner and diverted into the Forth River at Lake Cethana (Figure 1). Water is also diverted into the Forth catchment at Lake Cethana from the upper Mersey River catchment to lift power generation capacity.

Hydro Tasmania operates the Mersey-Forth hydro-electric scheme as a 'run of the river' system, meaning that lake levels are maintained at a fairly uniform level and power generation largely relies on the daily discharges of the system. Flow in the Forth River below Lake Paloona is therefore highly influenced by power generation requirements and discharge is augmented by water diverted from the Mersey River catchment.

Most of the catchment above Lake Cethana is part of the Tasmanian Wilderness World Heritage Area. Forestry is the predominant land use in the middle of the catchment, and agricultural land use for irrigated cropping, dairy farming, cattle and sheep grazing is confined to a relatively small area of the lower Forth-Wilmot catchment. Consumptive water use is generally concentrated in the lower Wilmot region and at the end of the catchment below Paloona Dam where it is extracted for irrigation.

In addition to water extracted for agricultural production on land within the lower catchment, the Kindred North-Motton Irrigation Scheme takes approximately, 2,500 ML of water per year to supply water rights holders in the Kindred North Motton Irrigation District that lies to the west of the catchment (refer to Figure 1). Tasmanian Irrigation extracts this water about 2 km downstream of Paloona Dam under a private water supply agreement with Hydro Tasmania. Water is then transferred via pipelines to water right holders in the irrigation district.

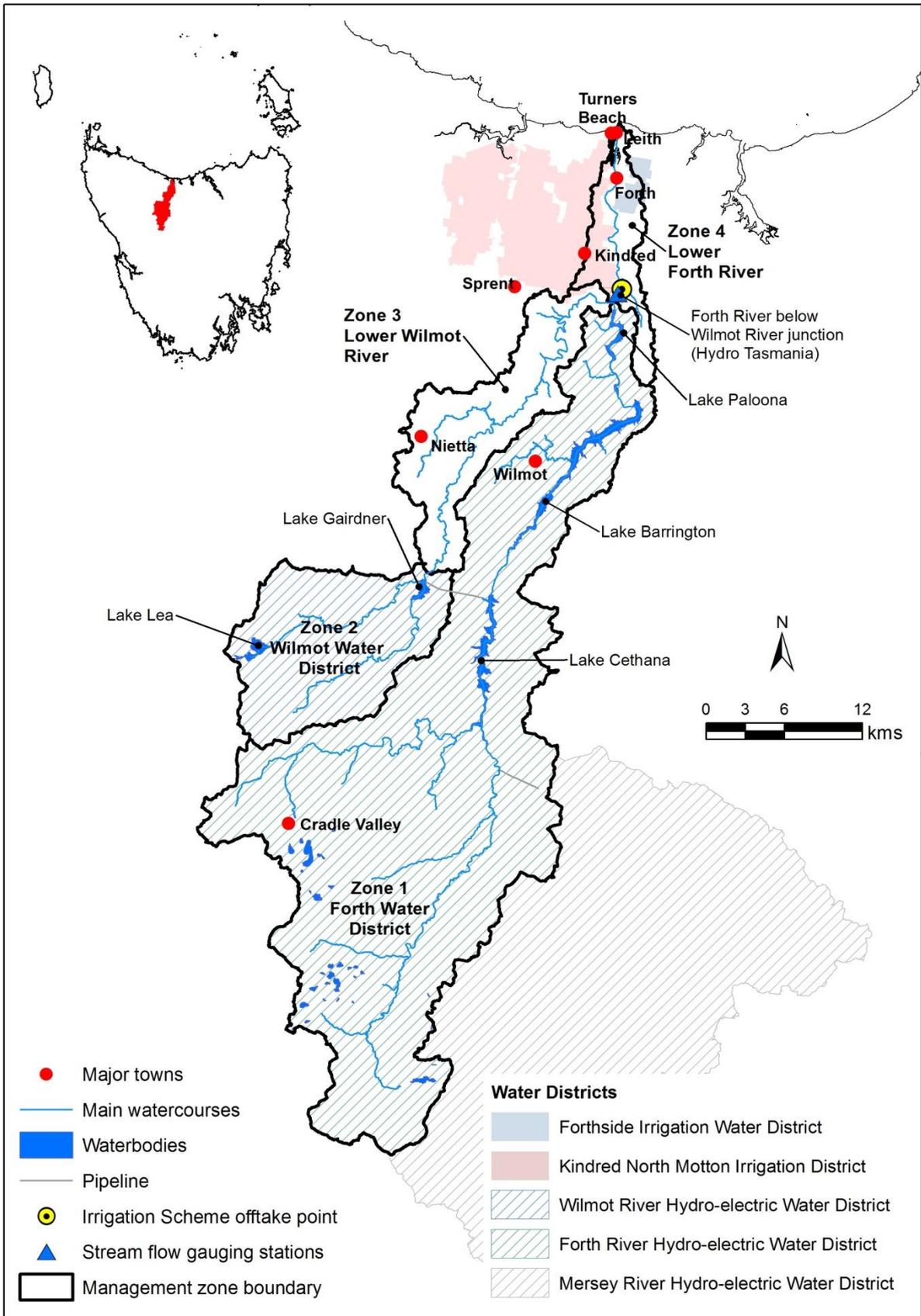


Figure 1: Forth-Wilmot River catchment showing the main rivers and lakes, management zones, irrigation and Hydro-electric districts.

The Forthside Irrigation Scheme (Figure 1) is a smaller scheme that is operated by the Forth Irrigation Trust, which holds a 900 ML water licence to take water from the Lower Forth for the supply of irrigation rights to landholders within the Forth Irrigation District.

### 3.2 Groundwater and Surface Water Resources

This Statement recognises the connectivity between surface water and groundwater resources. According to the Groundwater Dependent Ecosystem (GDE) Atlas, most streams and wetlands in the catchment have some degree of reliance on groundwater. Some areas of karst have been mapped in the upper Forth River catchment around Lake Cethana, and a number of small karst areas have also been mapped in the middle parts of the Wilmot River catchment. The most significant area of karst occurs in the Vale of Belvoir, in the headwaters of the Wilmot River, where there is minimal water use. This area, where there is a strong linkage between surface water and groundwater, is largely protected under land conservation covenants.

### 3.3 Freshwater-Dependent Ecosystem Values

An assessment of freshwater-dependent values in the Forth-Wilmot River catchment (DPIPWE 2015) using the Conservation of Freshwater Ecosystem Values (CFEV) database highlights many important features. Areas classified as 'High' and 'Very High' Integrated Conservation Value (ICV) include:

- headwater streams, wetlands, and waterbodies in the upper part of the catchment (including Dove Lake, Lake Lea and wetlands associated with the Vale of Belvoir)
- many named and small un-named lakes, lagoons and tarns located within the Cradle Mountain – Lake St Clair National Park
- some sections of the lower Wilmot River and the Forth River, as well as the Forth River estuary

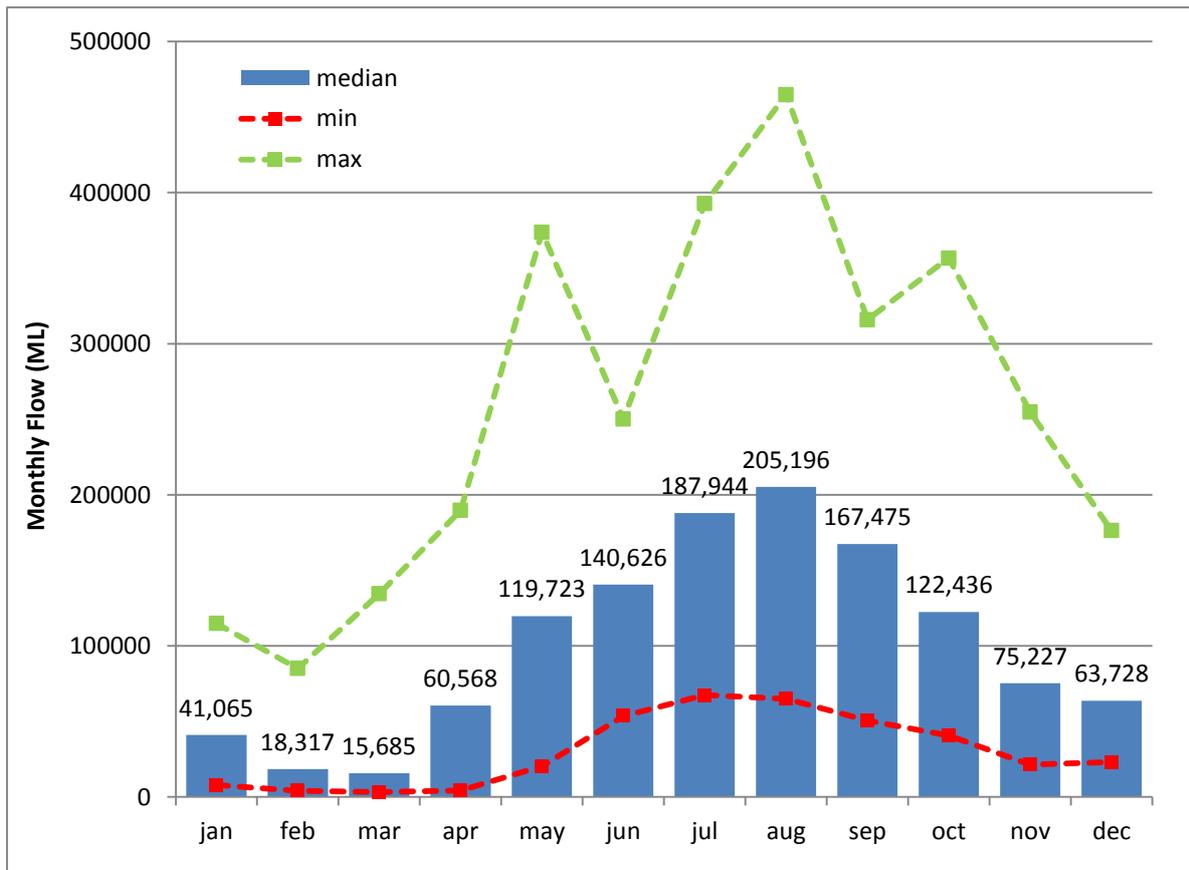
A significant area of karst is located in the Vale of Belvoir, around Lake Lea and north of Cradle Mountain and karstic formations also intersect the upper part of Lake Cethana and Lake Gairdner. Karst units generally denote places with significant connectivity between surface water and groundwater systems.

A number of special values (e.g. threatened species, important habitats, etc...) occur in the catchment including; the giant freshwater crayfish (*Astacopsis gouldi*), a number of hydrobiid snail species (*Beddomeia* spp.), Australian grayling (*Prototroctes maraena*), the green and golden frog (*Litoria raniformis*), whitebait (*Lovettia sealli* sp. nov.) and riparian vegetation including the threatened showy willowherb (*Epilobium pallidiflorum*), Forth River peppermint (*Eucalyptus radiata* subsp. *robertsonii*), *Melaleuca ericifolia* coastal swamp forest, shrubby *Eucalyptus ovata* forest, short paperpark swamp and lowland and highland *Poa* grassland. The Forth River estuary is also listed as an important habitat for birdlife.

Flora, fauna and geomorphic characteristics of special value in the upper catchment generally occur within reserves including the Tasmanian Wilderness World Heritage Area, and are upstream of any water allocations and are, hence, not impacted by water use and extraction.

### 3.4 Hydrological Characteristics

Hydrological modelling indicates that rivers in this catchment naturally experience strong seasonal flow patterns, with high river flows over winter and lower flows during summer (Figure 2).

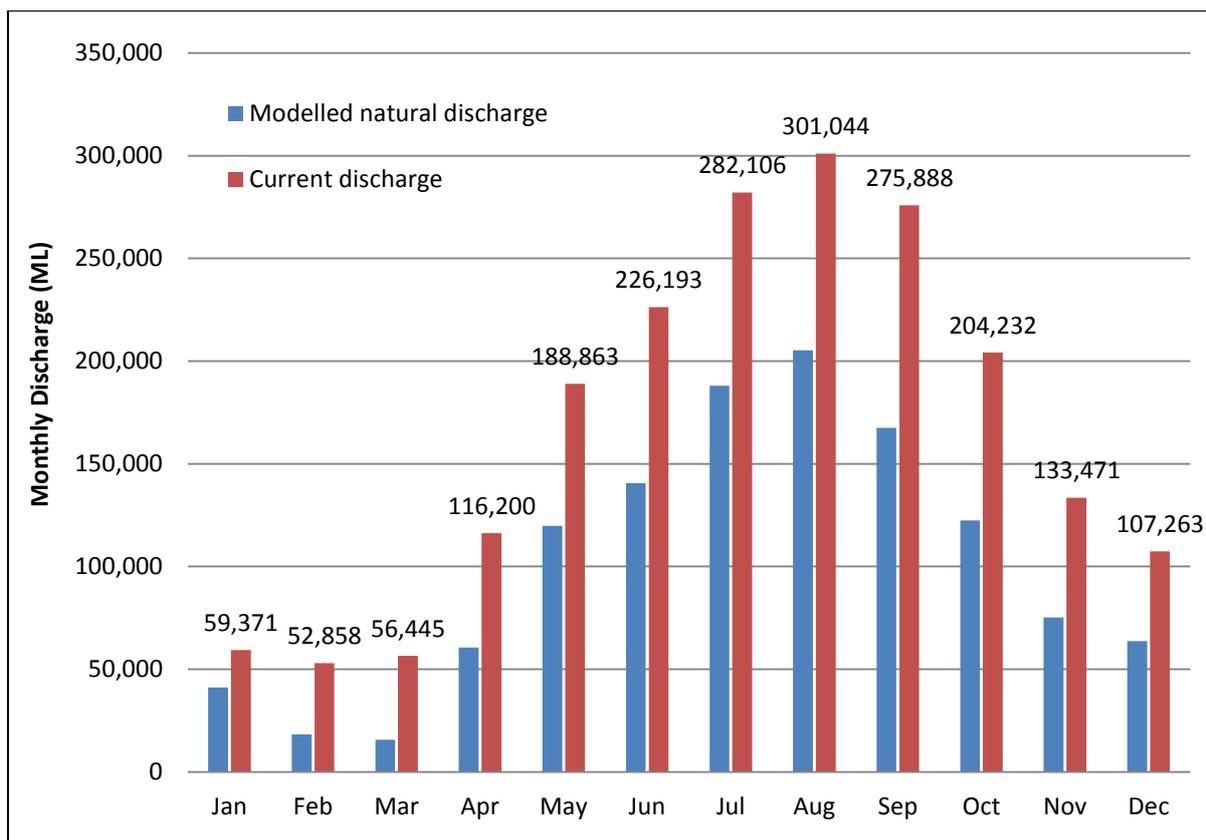


**Figure 2: Maximum, median and minimum monthly (modelled natural) discharge for the Forth-Wilmot catchment<sup>1</sup> assuming no hydro-electric development or water extraction.**

However, the flow regime of the Forth River since development of hydro-electric schemes commenced in 1968 has resulted in some notable hydrological modifications. Observed flow in the Forth River downstream of the Wilmot River (downstream of all hydro-electric infrastructure) illustrates the degree of hydrological departure under the current management environment (Figure 3). It should be noted that the higher than natural discharge is due to the additional water diverted into the Forth-Wilmot catchment from the upper Mersey River system (see Section 3.1).

Although the magnitude of high flow events in the Forth River (flows occurring less than 5% of the time) has decreased post-development (Hydro Tasmania 2011) the main impact is an overall increase in discharge in all months compared to natural conditions (Figure 3). The median daily flow has increased from approximately 1,642 ML/day to 4,666 ML/day, with post-development flows significantly exceeding natural flows 10 to 75% of the time, reflecting the effects of diversion of water from the upper Mersey River into the Forth River catchment (Hydro Tasmania 2011).

<sup>1</sup> Data is from the TascatchSIM models using SILO rainfall and evaporation data over the period 1969-2007. The model output shown here is for the “natural” scenario, i.e. no dams, diversions or extractions are included.



**Figure 3: Comparison of modelled natural and current monthly discharge at Forth River downstream of the Wilmot River (period of record 1973-2014) showing the change in the flow regime resulting from hydro-electric power development.**

At a daily time step, flow in the lower Forth River is significantly modified compared to what would occur naturally, being regulated by discharge patterns from the Paloona Power Station, which is influenced primarily by electricity supply requirements. Hydro Tasmania maintains a minimum flow of 0.71 cumecs (61 ML/day) downstream of Paloona Power Station via a riparian bypass, when the station is not operating, for downstream stock and domestic uses. A water supply agreement between Hydro Tasmania and Tasmanian Irrigation also exists to ensure continuity of water supply for the Kindred North Motton Irrigation Scheme during outages. Furthermore, discharge from Paloona Power Station is subject to rules regulating turbine start-up. Primarily instigated for reasons of public safety downstream, this ramp-up rule limits the speed at which discharge from the power station can be increased (Hydro Tasmania 2011).

### 3.5 Surface Water Management Zones

This section summarises the catchment's surface water resources into the following four management zones (shown in Figure 1):

1. Forth (Hydro-electric) Water District
2. Wilmot (Hydro-electric) Water District
3. Lower Wilmot River
4. Lower Forth River

Water resources within these management zones include, but are not limited to the surface water resources. Management zones 1 & 2 are Hydro-electric Water Districts, while zones 3 & 4 are downstream of the Hydro-electric Water Districts.

### 3.6 Surface Water Yield

Table 1 shows the observed median catchment yields for summer (1 December to 30 April) and winter (1 May to 30 November) take periods based on the observed flow record at Forth River downstream of the Wilmot River for the period 1973-2014. The yields have been significantly augmented by the diversion of water from the Mersey River and the operation of the Mersey-Forth hydro-electric scheme.

The observed yield of the system, therefore, provides a more realistic estimate of the current yield on the Forth River downstream of the Wilmot River (see Figure 1) at Hydro Tasmania's flow gauging site over the period 1973-2014.

**Table 1: Observed yield at Forth River downstream of the Wilmot River (Hydro Tasmania 1973-2014) for the summer (1 December to 30 April) and winter (1 May to 30 November) and annual (May – April) take periods.**

Management Zone	Median Observed Yield below Lake Paloona (ML)		
	Summer (Dec-Apr)	Winter (May-Nov)	Annual (May-Apr)
<b>Annual Observed Yield Forth-Wilmot River Catchment</b>	<b>408,064</b>	<b>1,639,463</b>	<b>2,034,282</b>

### 3.7 Environmental Water Requirements

Few environmental assessments have been undertaken in the Forth-Wilmot River catchment and none has examined environmental flow requirements of the river system. Since the late 1960's the river system has been modified by the construction of instream dams used for hydro-electric power generation. In the Forth River, these have inundated most river reaches between the Lemonthyme Power Station and Paloona Dam (13 km upstream of the Forth River Estuary). The only significant development on the Wilmot River is Lake Gairdner Dam, which diverts water from the upper Wilmot River via a tunnel and penstock to Lake Cethana (Hydro Tasmania 2011).

Hydro Tasmania undertook a range of technical and social studies of the Wilmot River below Lake Gardiner in 2013 as part of their Mersey-Forth Water Management Review (Hydro Tasmania 2013a). The objective of the assessment was to gather community feedback and assess technical information on aquatic values and river condition and management options to identify the costs, benefits and feasibility of an environmental flow release from Lake Gardiner. This work found that the Wilmot River below the lake is highly regulated, with flow most significantly affected during summer. The river downstream has poor water quality and river health (assessed using the AusRivAS methodology) is significantly impaired. However, despite persistent algal growth promoted by low flows and elevated nutrients, river condition improves downstream due to catchment inflows.

Following completion of the technical studies, Hydro Tasmania concluded that while releasing water from the Wilmot Dam could potentially improve water quality and macroinvertebrate health and reduce filamentous algal growth in the river downstream, there was little public pressure for an environmental flow release to occur. Hydro Tasmania concluded that, an environmental water release would not be pursued (Hydro Tasmania 2013b).

An environmental flows assessment for the reach of the Forth River between Paloona Dam and the estuary has not been undertaken since discharge to this part of the river system is seen as delivering an excess of the water and there are limited opportunities to alter the existing operation of the system.

## 4 SURFACE WATER ALLOCATIONS

### 4.1 Allocations Overview

As of March 2015, there were 124 licenced water users, holding 130 separate water licences containing 229 separate allocations. The total volume of water allocated under licences in this catchment is 26,886 ML (Table 2). Water is allocated at four surety levels for consumptive and non-consumptive use (Table 3). The current level of allocation represents about 1.3% of the median annual observed yield of the system downstream of Paloona Dam (refer to section 4.3 below).

**Table 2: The volume of water allocated, consumptively and non-consumptively (not including the volume used non-consumptively by Hydro Tasmania), by Management Zone.**

Management Zone	Consumptive	Non-consumptive	Total
1. Forth Water District	2,106*	1,426	<b>3,532</b>
2. Wilmot Water District	0	0	<b>0</b>
3. Lower Wilmot River	701	14,075	<b>14,776</b>
4. Lower Forth	8,578	0	<b>8,578</b>
<b>TOTAL</b>	<b>11,385</b>	<b>15,501</b>	<b>26,886</b>

\*This figure excludes 2,500 ML, which is transferred under a watercourse authority from Hydro Tasmania to Tasmanian Irrigation for use in the Kindred North Motton Irrigation Scheme. Because this is a private agreement between these two entities it is not a registered allocation within the DPIPWE licencing system.

Of the allocated volume, 11,385 ML is allocated for consumptive use (mainly commercial irrigation and town water supply) and 15,501 ML for non-consumptive use (not including the unallocated volume used by Hydro Tasmania for hydro-electric power generation). Water used for non-consumptive purposes is returned to the system; therefore, water leaving the Hydro-electric Water Districts and other private hydro-electric generation infrastructure may be made available for allocation downstream.

The allocated water is used for hydro-electric generation (excluding water use by Hydro Tasmania under their special licence) (58%), supply for town water (TasWater) (24%), irrigation (18%) and other commercial purposes (<1%), aquaculture (<1%), stock and domestic (<1%) (Table 3). The largest consumptive allocations are held by TasWater (6,420 ML (Surety 1)) and the Forthside Irrigation Trust (900 ML) and are taken downstream of Paloona Dam. Tasmanian Irrigation extracts 2,500 ML from the Forth River downstream of Paloona Dam for supply to the Kindred North Motton Irrigation Scheme. Water is supplied under a water supply agreement with Hydro Tasmania and taken under Hydro Tasmania's special licence from Paloona Dam.

Part of the Forth-Wilmot River catchment falls within the Wilmot and Forth River Hydro-electric Water Districts, the water resources in these districts are in effect already fully committed. Hydro Tasmania holds a special licence under Division 6 of Part 6 of the Act, conferring on it the right to all the water resources upstream of the Forth and Wilmot Irrigation Districts. Exceptions include rights held under Part 5 of the Act, and by other licensees whose rights were either granted at the commencement of the Act to replace existing rights, or have been granted since by means of a transfer with the agreement of Hydro Tasmania.

**Table 3: Allocations and surety levels on an annual basis from the Forth-Wilmot River catchment**

Surety Level	Consumptive	Non-consumptive	Total
1	6,420	0	6,420
5	1,295	1,526	2,821
6	1,170	75	1,245
7	0	13,900	13,900
<b>TOTAL</b>	<b>8,885</b>	<b>15,501</b>	<b>26,886</b>

**Surety 1** is the highest surety level and comprises water allocated to TasWater to supply towns in the region. All other Surety 1 water is taken without a licence as Part 5 rights under the Act. Surety 1 allocations are excluded from calculations of allocation volumes in the sections that follow below.

**Surety 2** water pertains to water retained in the river system to sustain ecosystems dependent on the water resource. This water (along with Surety 1 allocations) is protected by access rules regulating extraction of water by lower surety (Surety 5, 6 and 7) users.

**Surety 5** comprises water access entitlements under Part 6 of the Act for taking of water for commercial purposes.

**Surety 6** comprises water access entitlements under Part 6 of the Act for taking of water for commercial purposes at a lower level of reliability than Surety Level 5.

**Surety 7** comprises water access entitlements under Part 6 of the Act for taking of water for commercial purposes at a lower level of reliability than Surety Level 6.

## 4.2 Take Periods

Most consumptive water licences in the Forth-Wilmot River catchment authorise taking of water in two take periods that coincide with periods of low (summer) and/or high (winter) flows in the catchment (see Figure 2).

The summer take period on water licences is between 1 December and 30 April and the winter take period is between 1 May and 30 November.

### **4.3 Allocations on an Annual Basis**

The total volume of existing licensed allocations (annual takeable volume, as at March 2015) is 20,465 ML (excluding the volume of water allocated at Surety Level 1). This amounts to approximately 1% of the observed median annual yield from the Forth-Wilmot River catchment below Lake Palooona.

### **4.4 Allocation Limits**

The Forth-Wilmot River catchment includes the Forth and Wilmot Hydro-electric Water Districts, and consequently, the water resources upstream of these districts are in effect already fully committed. Hydro Tasmania holds a special licence under Division 6 of Part 6 of the Act, conferring on it the right to all the water resources of this catchment. Exceptions include rights held under Part 5 of the Act, and rights held by other licensees whose rights were either granted at the commencement of the Act to replace existing rights, or have been granted since by means of a transfer with the agreement of Hydro Tasmania.

As such, water within the Wilmot and Forth Water Districts is potentially available for allocations by means of transfer from Hydro Tasmania. The granting of any new allocations will be determined based on assessment of availability at the location of the proposed offtake and within the specified limits of existing allocation policies and guidelines. Applications for new allocations made within hydro-electric districts will also be conditional on the agreement of Hydro Tasmania to transfer that water.

All of the water rights held by Hydro Tasmania are returned to the system downstream of the Forth and Wilmot Water Districts. Therefore, a large volume of water is available for allocation below Lake Palooona. However, the availability, timing and duration of flows below Lake Palooona are dependent upon water releases related to the operation of the hydro-electric scheme in accordance with Hydro Tasmania's special water licence and other commercial imperatives.

Analysis of current allocations shows that the majority of extractive takes are below Lake Palooona and extractive use amounts to around 1% of the median annual yield. This level of extraction poses negligible risk to the existing environmental values. Allocation volumes will continue to be reviewed annually. If allocations increase substantially and are considered to approach a threshold where there is an increased risk to the environment then a more detailed assessment of allocation limits may be considered.

#### **4.4.1 Annual Take Allocations**

As at March 2015, there were 12 allocations that authorise the taking of 15,389 ML of water on an annual basis (over a 12-month take period) in the Forth-Wilmot River catchment (refer to Table 4).

The majority of the water allocated with an annual take period is used for non-consumptive uses, i.e. hydro-electric generation and aquaculture. Therefore, the majority of this water remains in the natural watercourse until it is taken and used, then returned to the natural watercourse where it then becomes available for re-allocation downstream of the return point.

**Table 4: Existing water allocations over an annual take period, showing total allocation volumes by management zone, surety level and purpose, as at March 2015.**

Management Zone	Surety Level	Volume (ML)		Total Allocations
		Non-consumptive	Consumptive	
1. Forth Water District	5	1,426	33	1,459
	7	0	0	0
2. Wilmot Water District	5	0	0	0
	7	0	0	0
3. Wilmot River	5	0	0	0
	7	13,900	0	13,900
4. Lower Forth	5	0	30	30
	7	0	0	0
<b>Forth-Wilmot River Catchment (at catchment outlet)</b>	<b>5</b>	<b>1,426</b>	<b>63</b>	<b>1,489</b>
	<b>7</b>	<b>0<sup>2</sup></b>	<b>0</b>	<b>0<sup>2</sup></b>
<b>Annual Total</b>		<b>15,326</b>	<b>63</b>	<b>15,389</b>

#### **4.4.2 Summer Take Allocations**

Table 5 sets out the existing allocations, as at March 2015, for each management zone for the summer take period.

As at March 2015, there were 57 allocations that authorise the taking of 3,232 ML of water during the summer take period in the Forth-Wilmot River catchment. As mentioned above, this does not include the 2,500 ML of water extracted from the lower Forth River by Tasmanian Irrigation to supply the Kindred North Motton Irrigation Scheme.

The median yield over the summer period based on observed flows downstream of Lake Palooona is 408,064 ML. In comparison with this figure it is clear that extractive water use in the summer take period is extremely low (less than 2 % of observed yield).

DPIPWE is currently reviewing summer allocations in all catchments. While this review is undertaken, applications for summer water will not be progressed.

<sup>2</sup> The total at the catchment outlet does not include water allocated for consumptive use upstream as this water is returned to the system and is no longer allocated downstream of its return point.

**Table 5: Existing water allocations in the summer take period, showing total allocation volumes by management zone, surety level and purpose, as at March 2015.**

Management Zone	Surety Level	Volume (ML)		Total Allocations
		Non-consumptive	Consumptive	
1. Forth Water District	5	0	141	141
	6	0	0	0
2. Wilmot Water District	5	0	0	0
	6	0	0	0
3. Wilmot River	5	0	382	382
	6	75	0	75
4. Lower Forth	5	0	1,519	1,519
	6	0	1,115	1,115
<b>Forth-Wilmot River Catchment (at catchment outlet)</b>	<b>5</b>	<b>0</b>	<b>2,042</b>	<b>2,042</b>
	<b>6</b>	<b>0<sup>2</sup></b>	<b>1,115</b>	<b>1,115<sup>2</sup></b>
<b>Summer Total</b>		<b>75</b>	<b>3,157</b>	<b>3,232</b>

#### **4.4.3 Winter Take Allocations**

Table 6 sets out the existing allocations, as at March 2015, for each management zone during the winter take period. As at March 2015, there were 160 allocations that authorise the taking of 1,843 ML of water during the winter take period in the Forth River catchment.

The median yield over the winter take period based on observed flows downstream of Lake Palooka is 1,639,463 ML. In comparison with this figure it is clear that extractive water use in the winter take period is extremely low (less than 1 % of observed yield).

**Table 6: Existing water allocations in the winter take period, showing total allocation volumes by management zone, surety level and purpose.**

Management Zone	Surety Level	Non-consumptive	Volume (ML)	
			Consumptive	Total Allocations
1. Forth Water District	5	0	365	365
	6	0	0	0
2. Wilmot Water District	5	0	0	0
	6	0	0	0
3. Lower Wilmot River	5	100	319	419
	6	0	0	0
4. Lower Forth	5	0	1,005	1,005
	6	0	54	54
Forth-Wilmot River Catchment (at outlet)	5	0 <sup>2</sup>	1,689	1,789
	6	0	54	54
<b>Winter Total</b>		<b>100</b>	<b>1,743</b>	<b>1843</b>

## 5 WATER ACCESS RULES

This section describes how the taking of water is managed on a daily basis, in the Forth-Wilmot River catchment. In this catchment, conditions attached to individual water licences are the main method used to manage extraction of water at the offtake location.

### 5.1 Restriction Management

For this catchment, there has been no requirement for a formal restriction management regime, due to the low level of demand and the large volumes of reliable water available in summer and winter take periods. The volume of water extracted in the Lower Forth catchment is minimal compared to the total yields from the catchment (see earlier sections) and the large volumes of water discharged from the Paloona Power station, which typically exceed 2,000 ML/day when the power station is operating. The main constraint to water availability relates to the pattern of water releases from Paloona Power Station, which is dictated by the need to meet energy demands.

Notwithstanding the lack of a formal restriction management regime, if licenced extraction by lower surety water right holders is impacting higher surety users restrictions may be applied as necessary. In addition, standard licence conditions include passing flow requirements that maintain base flows in the main watercourse and tributaries at the points of licenced extraction.

### 5.2 Groundwater Management

Any extraction of groundwater in this catchment must comply with the relevant statutory instruments, as set out in Part 7 of the Act, and the Department's regulations and policies pertaining to groundwater abstraction, licensing and management ([DPIPWE - Groundwater](#)).

Currently, groundwater can be extracted without a licence under Part 5 of the Act. Levels of groundwater development are monitored and where necessary, policy and management measures may be implemented commensurate with the level of risk. Management of groundwater extraction may include, but not be limited to, the applying of restrictions to commercial groundwater extraction under Part 5 water rights at the same time as those applied to licenced surface water allocations, if required.

## 6 ADAPTIVE MANAGEMENT FOR THIS CATCHMENT

As at March 2015, the total volume of existing allocations in the Forth-Wilmot catchment are still very low compared to the current median annual yield (refer to Section 4). While hydro-electric power development has modified the hydrology throughout the middle and lower river system, under the policies and management arrangements outlined in this Statement the hydrology at the catchment outlet still retains some elements of the natural flow regime. In addition, the management regime provides for fair and orderly access to the water resources by water users.

Therefore, notwithstanding the history of regulation for hydro-electric power generation, the current risks to water resources in this catchment are low and are managed because NWI-consistent water management frameworks are in place (refer to Water Management Statements – Background Information (DPIPWE 2016)).

If the level of allocation increases appreciably, or if new risks emerge, DPIPWE in consultation with the community may review existing water management arrangements. Periodic reviews of the effectiveness of access rules and management approaches may be used to inform adaptive management. If verified and balanced evidence can be provided to support improved management approaches, then changes may be considered so long as they are consistent with, and further, the environmental and water use and development objectives of the Act. This Statement will also be reviewed on an ongoing basis, to reflect periodic changes to relevant Departmental policies and other management arrangements.

Statutory water management planning, in accordance with Part 4 of the Act, may be required if there is strong competition for water resources. Statutory processes ensure that water allocation decisions that are outside the default policy frameworks are developed using detailed social, environmental and economic assessments, include transparent community consultation. Statutory planning processes ensure that allocation decisions that are outside the bounds of the allocation policy framework are consistent with the *Water Management Act 1999* and NWI policy objectives.

## 7 REFERENCES

DPIPWE. (2015). *Assessment of Freshwater Ecosystem Values in the Forth-Wilmot River Catchment*. WMP 15/02. Department of Primary Industries, Parks, Water and Environment, Hobart.

DPIPWE. (2016). *Water Management Statements: Background Information*, Department of Primary Industries, Water and Environment, Hobart.

Hydro Tasmania. (2011). *Mersey Forth River Water Management Review*. Hydro Tasmania, Hobart.

Hydro Tasmania. (2013a). *The Mersey-Forth Water Management Review Technical and Social Studies*.

Hydro Tasmania. (2013b). *Wilmot River Condition Assessment*. Mersey Forth River Water Management Review. Technical and Social Study. Hydro Tasmania, Hobart.

## APPENDIX A – INFORMATION SOURCES SUPPORTING THIS STATEMENT

**Freshwater-dependent ecosystem values** in this catchment were assessed using the Conservation of Freshwater Ecosystems Values (CFEV) assessment framework ([CFEV Program](#)).

**Hydrological character** assessment for this catchment uses hydrological modelling of the historic flow period (1970-2007) for the Forth-Wilmot catchment ([Hydrological Modelling Reports](#)). Data is from the TascatchSIM models using SILO rainfall and evaporation data over the period 1970-2007. The model output is for the “natural” flow scenario i.e. no dams, diversions or extractions are included.

Observed historic flow records at Forth River downstream of the Wilmot River for the period 1973-2014 are also used to compare the currently modified flow with the modelled natural flow. Observed flows are used to determine catchment yields as these represent the current availability of water as a result of the historic modification of the system for hydro-electric generation.

**Assessment of existing entitlements and water available for allocation** were extracted from the Water Information Management System (WIMS) for the Forth-Wilmot catchment in November 2014. Data were assessed to identify the volume, timing and distribution of licensed water entitlements from the Forth-Wilmot catchment. WIMS is the Department’s official register of water licences and entitlements. Information on water entitlements can be accessed via the [Water Information System of Tasmania](#) (WIST).

**Assessment of allocation limits** Assessment of allocation limits used for assessment of new allocations will be calculated using the Water Assessment Tool (WAT) at the location of any new proposed allocations. This approach provides allocation limits for the various management zones by applying the Department’s [water allocation policy and guidelines](#) to the catchment yields derived under CSIRO’s future dry climate scenario derived by the Tasmanian Sustainable Yields Project (TAS SY). This model output produces modelled yields representing a dry future climate scenario.

## APPENDIX B – WATER MANAGEMENT ROLES AND RESPONSIBILITIES

Key entities responsible for water management under the *Water Management Act 1999* in the Forth-Wilmot catchment.

Person	Role	Responsibility
The Minister	Administration of water under the Act	Administration of the water resources of Tasmania in accordance with the Act and other relevant national water policy commitments.
Department of Primary Industries Parks, Water & Environment (DPIPWE)	Delegated authority to implement administration of the Act where provided by the Minister	Administration of the Act where devolved to DPIPWE. This includes administration, licensing and allocation of water in accordance with policies and guidelines approved by the Minister.
Water Licensees and Part 5 Right holders	Authority to take water under the Act	Taking of water in accordance with water licence conditions and other relevant provisions under the Act.
Hydro Tasmania	Authority to take water under the Act and responsibility for management of water in accordance with its special licence in Hydro–electric Districts	Administration of water licenced to Hydro Tasmania in Wilmot Hydro-electric District and the Forth Hydro-electric District and Mersey Hydro-electric District (outside this statement area) in accordance with conditions of the special licence and other relevant provisions under the Act.
Tasmanian Irrigation Pty. Ltd.	Authority to take water under the Act and administration and management of supply of irrigation rights in accordance with the relevant provisions of the Act and the <i>Irrigation Clauses Act, 1973</i>	Administration of the Kindred North-Motton Irrigation District to supply irrigation rights through the Kindred North-Motton Irrigation Scheme (In addition to responsibility as a water licence holder).
Forthside Irrigation Trust	Authority to take water under the Act and administration of the supply of irrigation rights in accordance with the relevant provisions of the Act and the <i>Irrigation Clauses Act, 1973</i>	Administration of the Forthside Irrigation District to supply irrigation rights through the Forthside Irrigation Scheme (In addition to responsibility as a water licence holder).