

# Review of the implementation of Water Resources Policy 2015/ *Water Resource Management During Extreme Dry Conditions*

September 2020

Water and Marine Resources Division

Department of Primary Industries, Parks Water and Environment



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# PART A - BACKGROUND

## I INTRODUCTION

Having a variable climate means dry times are an inevitable feature of the Tasmanian landscape. In Tasmania, extreme dry conditions are often characterised by well-below average winter rainfall, followed by dry spring and summer periods and very low stream flows through spring and summer.

Water Resources Policy 2015/1, *Water Resource Management During Extreme Dry Conditions* (the Policy) sets out procedures for identifying when a catchment or a region within Tasmania is experiencing extreme dry conditions and guides decision-making about implementation of restriction regimes, conveyance of water, compliance and enforcement and environmental monitoring during these times. In particular, the Policy allows for the implementation of restriction regimes and conveyance of water to be managed slightly outside some of the normal procedures set out by water management protocols, water management plans and other policies that would usually apply.

The Policy sits alongside other government responses to provide assistance for Tasmania in times of drought. These currently include:

- Rural relief fund
- Tasmanian fodder register
- Outreach services
- On-farm drought preparedness and management support
- Drought weed management support
- Water management assistance<sup>1</sup>
- Federal government drought assistance.

The Policy was adopted as a Ministerial policy under section 8 of the *Water Management Act 1999* (WMA) on 4 November 2015 by the then-Minister for Primary Industries and Water. The Policy was modified in 2019 to address review recommendations made following the implementation of the Policy in 2015. The Policy is supported by procedures that are set out in schedules to the Policy.

In accordance with the Policy, on 17 January 2020 the Minister for Primary Industries and Water determined that extreme dry conditions were prevailing in Zone 3, North-East Tasmania and specified that water resources in Zone 3, North-East Tasmania were subject to

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<sup>1</sup> including DPIPWE workshops and practical support with on-farm and catchment-wide water management, including proactive assistance to farmers with licensing issues, dam works considerations and district wide cooperative arrangements on sharing available irrigation water.

the implementation of the Policy. In accordance with the provisions in the Policy, on 1 May 2020, the determination lapsed and the implementation period ended.

There is a requirement that application of the Policy is reviewed within six months after each implementation period. In the case of the 2020 implementation period a review must be undertaken by November 2020.

As specified in the Policy, the review has considered:

- (a) the effectiveness of the Policy in meeting its objectives;
- (b) the effectiveness of the Policy's implementation including timeliness of decision-making, efficacy of operational actions and management of water resources;
- (c) the overall effect of the Policy's implementation, both short-term and longer-term, in regard to water resource management in Tasmania.

Where applicable, recommendations are expected to be made in relation to what changes the Minister may consider making to the Policy.

### **1.1 Conduct of review**

The review was conducted by the Water Policy and Planning Branch within DPIPW and was finalised in September 2020. The Terms of Reference for the review are included in Appendix I.

Feedback was sought from 12 irrigators based in Zone 3, North-East Tasmania, the Ringarooma Water Users Group (RWUG), the Tasmanian Farmers and Graziers Association (TFGA), Tasmanian Irrigation (TI) and TasWater to seek their views on implementation of the Policy in 2020. Feedback was received from two irrigators, RWUG, TFGA and TI.

These stakeholders were asked about whether they were aware that the policy was implemented; what they thought the effects were of any operational actions under the policy for farming enterprises, other water users or the environment; and, their views on what improvements could be made to the Policy.

The Department also sought feedback internally from the Water Management and Assessment Branch, Water Operations Branch, AgriGrowth and the Inland Fisheries Service.

This feedback informed the findings and recommendations of the review.

## **2 WHAT DOES THE EXTREME DRY CONDITIONS POLICY PROVIDE FOR?**

### **2.1 Objectives of the Policy**

The Policy details the water resource management procedures that are to be implemented during extreme dry conditions. These procedures aim to ensure that Tasmania's water resources are appropriately managed during extreme dry periods to meet the objectives of the WMA.

The objectives of the Policy are to:

- (a) provide a set of management procedures that ensure an appropriate balance between consumptive water needs and environmental water needs during extreme dry conditions;
- (b) provide for transparent, consistent decision making in regard to management of water resources during extreme dry conditions; and
- (c) minimise hardship for farming enterprises and regional Tasmania whilst protecting water for critical human and stock requirements and significant environmental assets during extreme dry periods.

### **2.2 Flexible Implementation of Restrictions on the Taking of Water**

One of the key management provisions of Tasmania's water resource management system, the restriction regime, can be implemented in a relatively routine and simple manner in most years, in accordance with existing water management protocols and water management plans. However, in years when extreme dry conditions are experienced, an alternative balance between consumptive water needs and environmental water needs may be required to meet the objectives of the WMA.

To achieve the right balance during extreme dry conditions, the restriction regime may need to be implemented in an adaptive manner.

The Policy directs, procedurally, how decisions on the implementation of restrictions are to be made during extreme dry conditions. Under this approach, flexibility is provided to ensure that the implementation of the restriction regime is suitable for the specific conditions. Restrictions are applied in a way that minimises hardship for farming enterprises whilst protecting water for critical human and stock requirements and significant environmental assets during extreme dry periods.

### **2.3 Conveyance of Water**

Part 6A of the WMA provides for water that has previously been taken and stored in accordance with the WMA, to be conveyed via a watercourse. The ability to convey water via watercourses allows farmers to transfer and secure water supplies.

In normal times, conveyance of water involves the downstream transfer of stored water from one location to another, by releasing it into a watercourse and then extracting it at the downstream location. Approval of this activity considers matters including conveyance losses, and typically assumes that the water is conveyed to the extraction point.

Under the Policy, greater flexibility may be available for the conveyance of water during extreme dry conditions. Procedurally, the Policy allows for the following:

1. Where relevant, watercourse authorities can be approved with a condition permitting water to be taken from a location within 2 km upstream of where the released water is conveyed to, subject to suitable hydrological conditions and no third-party impacts occurring.
2. Where it would not otherwise impact on other water users, watercourse authorities can be approved without conditions requiring full conveyance losses to be accounted for. Reducing transmission losses could lead to potential impacts on critical human and stock requirements or environmental water needs, so consideration of conveyance losses is on a case by case basis.

The procedures under the Policy do not apply to water entities.

## **2.4 Compliance and enforcement**

Compliance and enforcement activities undertaken by the Department have a strong focus on education to encourage compliant behaviour, rather than using hard enforcement actions alone. This approach is widely accepted as the most effective way to encourage long-term behavioural change and good regulatory outcomes. Under the Policy, during extreme dry conditions when there are likely to be high levels of stress and potential hardship within the farming community, the Department maintains its focus on education and awareness, working with catchment communities wherever possible in the management of water resources and compliance activities.

## **2.5 Environmental Monitoring**

When the Policy is implemented it is a requirement of the Policy that environmental monitoring and reporting is undertaken to assess potential impacts of low flows on ecosystems that depend on the water resource. The Department determines the appropriate level of monitoring, taking into account the nature of the river system, the extent of the Policy's implementation, the environmental values at risk and the resourcing available to undertake the environmental monitoring and reporting.

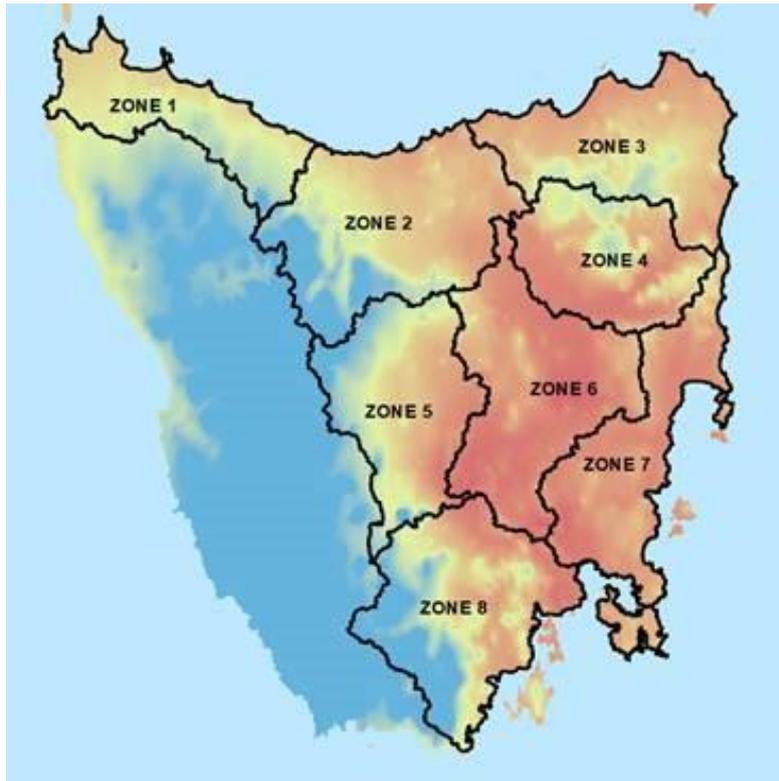
## **2.6 Extreme dry assessment approach**

The threshold for the existence of extreme dry conditions approximates a 1 in 10 year (or rarer) 'dry' event and the Policy has robust procedures, set out in Schedule 1 of the Policy, to support the consideration of whether or not extreme dry conditions prevail.

To support the Department’s assessment of conditions, Tasmania has been divided into eight geographic zones, with river catchments grouped based on similar climatic and hydrological conditions (see Table I and Figure I below).

**Table I. River catchments included in Extreme Dry Conditions assessment zones.**

<b>Zone</b>	<b>Zone name</b>	<b>River Catchments Included</b>
<b>1</b>	North-West	Welcome, Montagu, Duck, Black, Inglis, Cam, Emu and Blythe rivers.
<b>2</b>	Central North	Leven, Wilmott, Forth, Mersey, Meander and Rubicon rivers. Tamar estuary.
<b>3</b>	North-East	Pipers, Little Forester, Brid, Great Forester, Ringarooma, Ansons and George rivers
<b>4</b>	North and South Esk	North Esk, South Esk – including St. Patricks and St. Pauls rivers
<b>5</b>	Upper Derwent	Upper Derwent – including the Ouse and Florentine rivers
<b>6</b>	Midlands	Macquarie – including Brumby’s and the Lake, Clyde, and Jordan rivers
<b>7</b>	East Coast	Scamander, Douglas, Swan, Meredith, Little Swanport, Prosser, Carlton, Coal rivers
<b>8</b>	Lower Derwent, Huon and Channel	Lower Derwent (including Tyenna), Huon, Channel catchments and Bruny Island



**Figure 1. Extreme Dry Conditions assessment zones. Shading represents long-term average annual rainfall from wet (blue) to dry (red)**

A preliminary analysis of hydrological conditions is undertaken at least quarterly throughout the year, and monthly when required, i.e. when the chances of extreme dry conditions are increasing<sup>2</sup>. The results of the analysis are documented in a technical note called the ‘State-wide Dryness update’, for use within the Department. The preliminary analysis considers 3-month, 6-month and 12-month Standardised Precipitation Index (SPI) calculations from representative rainfall data sourced from each of the eight assessment zones. The SPI indices quantify the precipitation deficit for multiple time scales. These timescales each provide an indicator of the potential effects of dryness on water availability:

- the 12-month SPI provides an indication of water availability over the longer term, i.e. the likely opportunity licence holders have had to fill their storages;
- the 6-month SPI provides an indicator of the likelihood of soil moisture to be in deficit; and
- the 3-month SPI provides an indicator of recent rainfall and the potential for recent freshes to have occurred.

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<sup>2</sup> Note that the state-wide dryness assessment indices must be calculated based on monthly aggregated data as per technical requirements. The Department undertakes the assessment at the end of each calendar month which balances the purpose and intent of the policy to identify extreme dry conditions, technical considerations such as data availability from BoM, data quality and level of sensitivity of the indices to climatic drivers, and the staff resources required.

A 'dry' region is identified when the 1 in 10 year thresholds are exceeded for each of the 3-month, 6-month and 12-month SPI calculations (WMAB, 2018). The Procedure then requires that for each of the 'dry' regions, comment is sought from the DPIPWE Water Operations Branch as to the level of water scarcity and catchment storage positions. The Procedure also requires assessment of the following:

- a. Analysis of hydrological (flow) and agricultural (soil moisture) indicators should it be necessary. Note: soil moisture conditions for a given area will be based on those provided by the Bureau of Meteorology's AWRA-Landscape model;
- b. The presence of El Niño and Indian Ocean Dipole climatic systems;
- c. Seasonal rainfall and streamflow forecasts made by the Bureau of Meteorology;
- d. The geographic extent to which Tasmania, or significant parts of Tasmania, are, or are likely to be, affected; and
- e. The likelihood of long-term restrictions being in place without the operation of the Policy.

This information informs whether a recommendation is made to the Minister to declare that extreme dry conditions are prevailing.

### **3 EXTREME DRY CONDITIONS IN 2020**

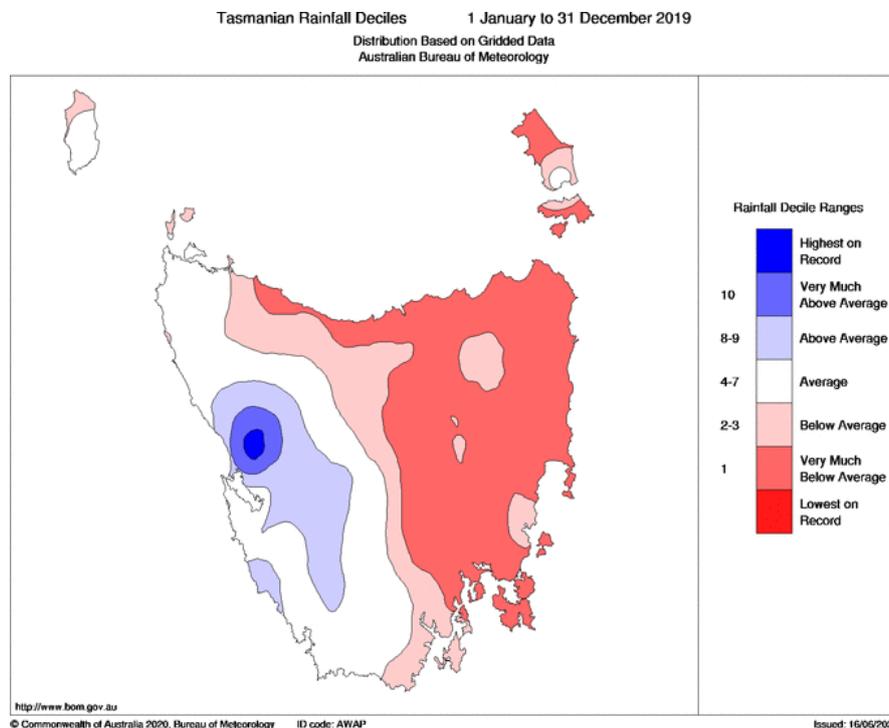
2019 was characterised by below average rainfall in the east, above average rainfall in the west and above average temperatures across the entire State (BOM, 2020). The Bureau of Meteorology Annual Climate Summary for Tasmania (BOM, 2020) provides the following information about the state-wide climatic conditions in 2019, leading into the implementation period of the Policy in January 2020. Rainfall and temperature decile maps are included in Figure 2 below.

#### **Rainfall**

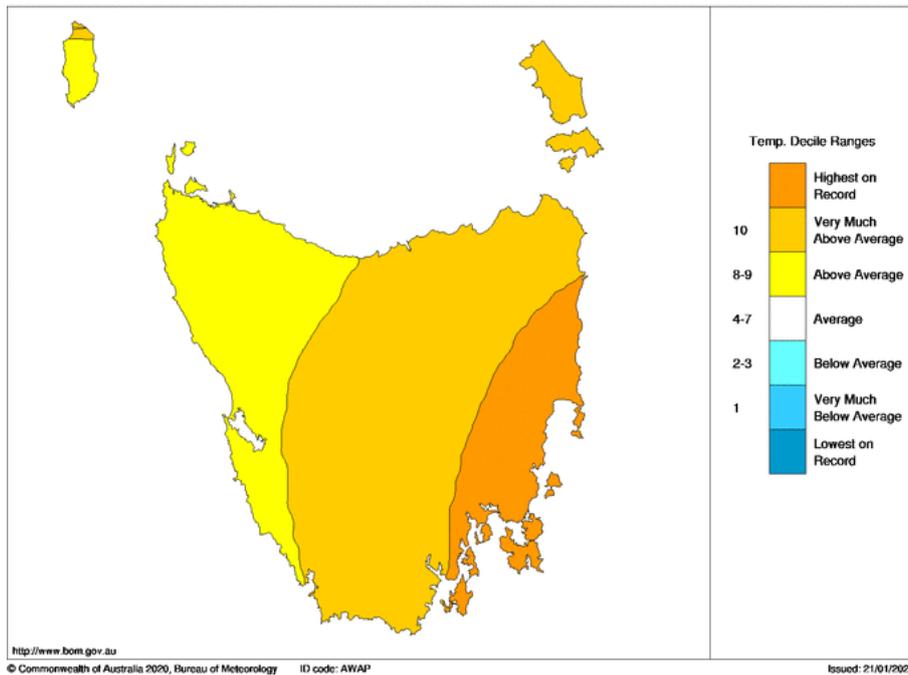
- Rainfall totals for 2019 were below average in the east and above average in the west.
- January and October 2019 were very dry over most of Tasmania, with particularly low total rainfalls in the east of the State.
- In the east, most months apart from September were drier than average, continuing a run of months with generally below-average rain that extended back to the beginning of 2017.
- In the west, westerly winds and cold fronts ensured May, July and November 2019 were wetter than usual.
- Total rainfall for the year was below average for much of the State, and well below average over most of the eastern half, but above average in the western highlands.

## Temperature

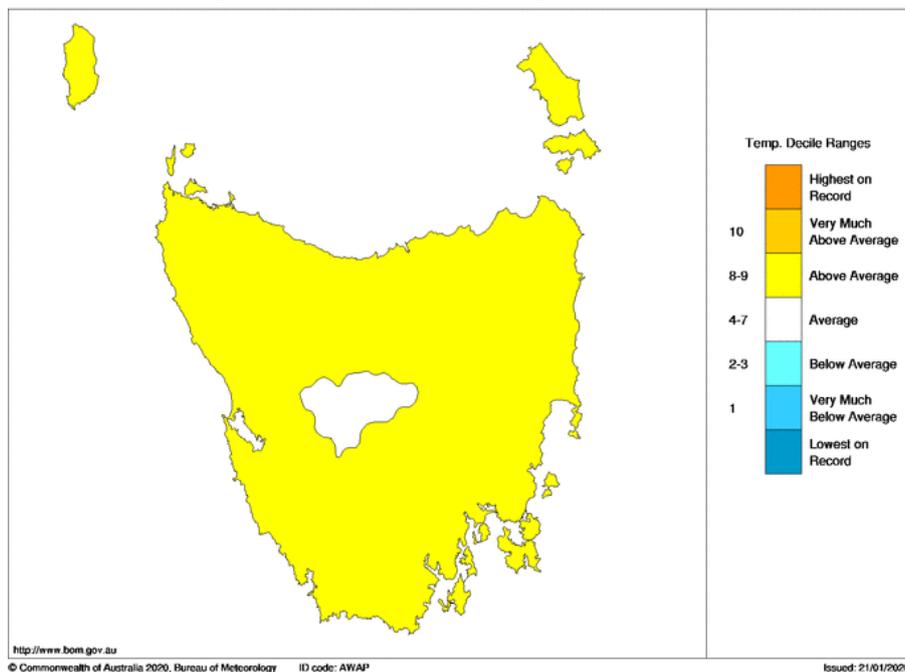
- Tasmania's mean temperature for the year was 0.41 °C above average.
- 2019 started with Tasmania's warmest January on record, and mean maximum temperatures were above average in most months (but cool in the west in November 2019).
- There was unseasonably hot weather early in March 2019, with several monitoring sites breaking their record for highest temperature.
- Cool nights were common from August to November 2019, but the mean minimum temperature was warmer than average in most months and for the year overall
- Tasmania's mean minimum temperature for the year was 0.17 °C above average



Maximum Temperature Deciles 1 January to 31 December 2019  
 Distribution Based on Gridded Data  
 Australian Bureau of Meteorology



Minimum Temperature Deciles 1 January to 31 December 2019  
 Distribution Based on Gridded Data  
 Australian Bureau of Meteorology



**Figure 2. Rainfall, Mean Maximum Temperature and Mean Minimum Temperature Deciles, 1 Jan to 30 December 2019 (BOM, 2020).**

It was evident that dry conditions were being experienced across much of the eastern part of Tasmania leading into January 2020.

The Statewide Dryness updates were prepared on a monthly basis throughout October 2019 to May 2020 and showed that a number of catchments were approaching 1 in 10 year dry conditions leading into January 2020.

In January 2020, the Statewide Dryness update for December's conditions showed:

- Zone 3 met the criteria under the Policy to further examine on-ground conditions.
- A number of other areas of the State were approaching Extreme Dry conditions based on the SPI (Rainfall) Index, particularly the Central North, North and South Esk, Upper Derwent, Midlands, and East Coast zones.
- All reporting zones had experienced below average aggregated rainfall for the preceding 12 months with the most severe rainfall deficiencies being experienced by the Midlands, East Coast, Upper Derwent, North East, and North and South Esk zones.
- December rainfall was extremely low for the majority of the State.
- According to the BoM AWRA-L model, root zone soil moisture levels for the midlands, north, north-east, south east and most of the east coast were well below average for the time of year.
- The Bureau of Meteorology was forecasting below median river flows for the next 3 months for the central north, north-east and east coast zones.
- Many catchments were on restriction at the lowest cease-to- take (CTT) thresholds for summer.

Table 2 shows the traffic light summary of the 3, 6 and 12-month Standardised Precipitation Index (SPI) values for reporting zones based on 'zone' averaged monthly rainfall up to the end of December 2019 (WMAB, 2020).

Table 3 provides a traffic light summary of the 3, 6 and 12-month Standardised Streamflow Index (SSI) values for selected gauged river flow sites for reporting zones (with the exception of Zone 5 Upper Derwent) for streamflows measured up to the end of December 2019 (WMAB, 2020).

**Table 2. 3, 6, and 12-month Standardised Precipitation Index (SPI) values for extreme dry reporting zones to the end of December, 2019 (from WMAB, 2020).**

Zone	Zone name	3 month SPI	6 month SPI	12 month SPI	24 month SPI
Zone 1	North-West	● -0.67	● -0.44	● -0.41	● -0.52
Zone 2	Central North	● -1.44	● -1.21	● -1	● -0.88
Zone 3	North-East	● -1.84	● -1.35	● -1.65	● -1.1
Zone 4	North and South Esk	● -2.14	● -0.99	● -1.36	● -1
Zone 5	Upper Derwent	● -1.61	● -1.08	● -1.39	● -1.03
Zone 6	Midlands	● -1.66	● -1.23	● -1.6	● -1.26
Zone 7	East Coast	● -1.11	● -0.92	● -1.59	● -1.57
Zone 8	Lower Derwent, Huon and Channel	● -0.79	● 0.13	● -0.66	● -0.24

**Table 3. 3, 6 and 12-month Standardised Streamflow Index (SSI) values for selected river flow gauges to the end of December, 2019.**

Zone	River	3 month SSI	6 month SSI	12 month SSI	24 month SSI
Zone 1	Black	-0.84	-0.31	-0.31	-0.34
Zone 1	Duck	-0.28	0.43	0.50	0.43
Zone 2	Leven	-0.77	-0.36	-0.46	-0.66
Zone 3	Great Forester	-1.25	-1.00	-1.11	-1.26
Zone 3	Ringarooma	-0.75	-0.63	-0.75	-0.73
Zone 4	North Esk	-1.51	-0.95	-1.10	-1.05
Zone 4	South Esk at Perth	-1.93	-1.63	-1.71	-1.78
Zone 6	Macquarie	-0.67	-0.65	-0.68	-0.78
Zone 7	Swan	-1.44	-1.63	-2.01	-2.58
Zone 8	Snug Rt	-0.83	-0.57	-0.81	-0.99
Zone 8	Tyenna	0.61	0.99	0.54	0.36

Note:

Cells with **GREEN** circles reflect above average rainfall/SPI OR stream flows/SSI;

**ORANGE** circles below average;

**RED** circles lower than a 1 in 5 year dry event threshold; and

**BLACK** circles highlighted red are lower (drier) than a 1 in 10 year dry event. It is the 1 in 10 year dry event threshold that was highlighted in DPIPWE (2018) as the 'extreme dry' threshold.

## 4 WHAT ACTIONS WERE MADE UNDER THE POLICY IN 2020?

### 4.1 Ministerial determination that extreme dry conditions prevailed

In accordance with the Policy, on 17 January 2020 the Minister for Primary Industries and Water determined that extreme dry conditions were prevailing in Zone 3, North-East Tasmania and specified that water resources in Zone 3, North-East Tasmania were subject to the implementation of the Policy. Key information considered in making the determination included an assessment of dryness and an assessment of on-ground conditions, in accordance with the Policy.

- Assessment of dryness
  - Zone 3 met the criteria under the Extreme Dry Policy #2015/1 to further examine on-ground conditions.
- Assessment of on-ground conditions (level of water scarcity across Zone 3 and the likelihood of long-term restrictions being in place).
  - It was likely that restrictions on the taking of water could be in effect across much of the State (including in Zone 3) for the remainder of summer and

possibly into the autumn period. Regardless of restrictions on the taking of water, flow in many of the State’s river systems was likely to cease altogether.

- TasWater, Tasmanian Irrigation and a number of licence holders provided information on their dam storage positions within Zone 3.
- There was a relatively good level of storage within Zone 3, and it was noted that farmers with on-farm storage, access to water from an irrigation scheme, access to groundwater or a combination of these would be better placed to manage the conditions.
- It was identified that farmers entirely reliant on taking water from rivers to apply directly to pasture or crops were likely to face serious difficulty unless they could source water from other sources such as water in private storages or Tasmanian Irrigation schemes, where available and authorised through Watercourse Authorities.

## 4.2 Actions during the 2020 implementation period

### 4.2.1 Communication activities

In January, staff from DPIPWE’s Water Operations Branch held meetings with an open invitation for water licence holders to attend to discuss the dry conditions across the State. Table 4 shows a list of the meetings that were held. The objective of the meetings was to provide information to irrigators about the Extreme Dry Policy and the process that would be followed if a declaration was made for their area. The meetings also gave an opportunity for irrigators to ask questions about the Policy.

**Table 4. Meetings held with irrigators about dry conditions**

<b>Date</b>	<b>Meeting Location</b>	<b>Nearby Assessment Zone(s)</b>
18/12/2020	Mersey	Zone 2
3/01/2020	Hamilton	Zone 5, Zone 6
3/01/2020	Oatlands	Zone 5, Zone 6
7/01/2020	Longford	Zone 2, Zone 4
10/01/2020	Frankford	Zone 2
10/01/2020	Deloraine	Zone 2
22/01/2020	Forth	Zone 2
23/01/2020	Scottsdale	Zone 3

23/01/2020	Winnaleah	Zone 3
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#### **4.2.2 Meeting of key stakeholders within the Department to determine options for implementation actions**

Following the declaration of extreme dry conditions in Zone 3, North-East Tasmania, work commenced within the Department to implement the Policy. This included a meeting of internal stakeholders (herein nominally referred to as 'the Panel') on 28 January 2020 to identify implementation actions within Zone 3, and to discuss information needs to prepare for possible future declarations in Zones 2, 5 and 7. The Panel comprised of staff representatives from within DPIPWE:

- Water Management and Assessment Branch (WMAB)
- Water Operations Branch (WOB)
- Water Policy and Planning Branch (WPPB)
- AgriGrowth (AGT)
- Inland Fisheries Service (IFS)

#### **Withholding water restrictions**

Schedules 3 and 4 of the Policy set out the procedures for the implementation of restrictions on the taking of water while the extreme dry season policy is in effect.

The Panel considered the procedures and concluded that an Authorised Officer could not withhold a restriction when river flows are at or below the lowest CTT that each apply to the rivers in Zone 3, noting that:

- when flows in the rivers are below the CTT thresholds, environmental values may already be experiencing a level of stress which would be exacerbated by further reductions in streamflow.
- water flows within the rivers of Zone 3 support significant environmental values, including at least two species that require consideration as a matter of national environmental significance under the *Environmental Protection and Biodiversity Conservation Act 1999*, the Australian grayling (*Prototroctes maraena*) and giant freshwater crayfish (*Astacopsis gouldi*). These species were seen to be particularly vulnerable to actions which would have caused a further reduction in flow. It was also noted that there are a number of projects funded by the Australian Government (managed by NRM North) that are seeking to improve habitat for giant freshwater crayfish in Zone 3 (specifically in the Brid, Pipers and Boobyalla Rivers).
- further reductions in stream flows also had the potential to result in fish kills, with high risk from elevated water temperatures and associated low dissolved oxygen levels. It was

also noted that the risk of fish kills may taper off in March-April when water temperatures typically start to drop.

- further reductions in stream flows could also result in risks to essential stock and domestic supplies (Surety 1 allocations and some Part 5 rights).

The Panel formed the view that under the circumstances in Zone 3, North-East Tasmania, an Authorised Officer could withhold a restriction only if it was known that significant rainfall was forecast in the next few days or where a lower CTT value existing for the river, in a different month, could be applied. The only catchment within Zone 3 where this was the case was the Ringarooma River, where the lowest annual CTT (usually applied in March), could be applied in February (the March CTT is 40 ML/day, whilst the February CTT is 60 ML/day).

### **Conveyance of water**

The Panel noted that the reduction or waiving of transmission losses on a large Water Course Authority in a long river system could result in similar effects to permitting water to be taken once a lowest CTT threshold had been met, as described above.

The Panel advised that any Watercourse Authorities being assessed in Zone 3 should be considered on a case by case basis to ensure that any reduction in transmission loss factors or conveyance upstream (maximum 2 km) would not result in a high risk to the environment, water dependent threatened species or critical human or stock water needs.

### **Discussion of possible future declarations of extreme dry conditions in 2020**

At the time that the Panel met, extreme dry indicators were approaching 1 in 10 year event trigger values in other assessment zones, namely zones 2, 5 and 7. Due to good rainfall in January through to May, extreme dry conditions were not experienced across these zones.

#### **4.2.3 Flexible Implementation of Restrictions on the Taking of Water**

Appendix 2 shows the restrictions that were in place for each of the catchments within Zone 3 during 2019-20. A total ban on taking surety 6 or surety 5 water was in place for Ringarooma, Great Forester (upper and lower), Boobyalla, Tomahawk, Little Forester, Pipers, Brid and Ansons Rivers when the declaration of extreme dry conditions was made on 17 January 2020.

There was no flexible implementation of restrictions on the taking of water as all rivers in Zone 3, except for the Ringarooma River, had already reached their lowest CTT threshold.

The Panel noted potential for withholding of restrictions in the Ringarooma River in February by applying the March lowest annual CTT (40 ML/day) as opposed to the 60 ML/day CTT for February. However, rainfall and higher stream flows in late January and February meant this intervention was not required.

#### **4.2.4 Conveyance of Water**

No applications for conveyance of water were made during the implementation period.

#### **4.3 Determination that Extreme Dry Conditions no longer prevail**

In accordance with the Policy, the determination that Extreme Dry Conditions prevailed lapsed on 1 May 2020 and the Policy no longer applied.

## **PART B – FINDINGS AND RECOMMENDATIONS**

### **5 EFFECTS OF IMPLEMENTATION OF THE POLICY IN 2020**

#### **5.1 Impact of the 2020 implementation on farming enterprises**

There were no material benefits to irrigators resulting from implementation of the policy as no implementation actions occurred.

#### **5.2 Impact of the 2020 implementation on third parties**

##### **5.2.1 Essential town water and stock and domestic needs**

There were no effects to essential town water or stock and domestic needs resulting from implementation of the policy as no implementation actions occurred.

##### **5.2.2 Environmental water needs and the ecological effects of low flow conditions**

There were no ecological effects resulting from implementation of the policy as no implementation actions occurred.

## **6 FINDINGS OF THE REVIEW**

### **6.1 The effectiveness of the Policy in meeting its objectives**

The Policy was somewhat effective in meeting its objectives. Further details are provided below.

- (a) *provide a set of management procedures that ensure an appropriate balance between consumptive water needs and environmental water needs during extreme dry conditions.*

No additional access to consumptive water under Surety 5 or 6 allocations could be made available during the extreme dry conditions in 2020. This was because of the environmental values present in Zone 3 that would have been at risk if licence holders had been allowed to take water from streams with flows being recorded below their lowest CTT trigger values.

These environmental values included two species that require consideration as a matter of national environmental significance under the *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act), the Australian grayling (*Prototroctes maraena*) and giant freshwater crayfish (*Astacopsis gouldi*).

Due to the timing of the declaration, when the flow of rivers within the zone were being recorded at or below their lowest CTT thresholds, and due to the presence of these significant environmental values, no other appropriate balance between consumptive and environmental water needs could have been struck.

Whilst the Policy provided no benefit to Surety 5 and 6 consumptive water users, it did work to protect significant environmental assets in the region.

(b) *provide for transparent, consistent decision making in regard to management of water resources during extreme dry conditions.*

The Policy and its procedures provided for transparent and consistent decision making in regard to management of water resources during the extreme dry conditions.

(c) *minimise hardship for farming enterprises and regional Tasmania whilst protecting water for critical human and stock requirements and significant environmental assets during extreme dry periods.*

No implementation actions could be undertaken to minimise hardship during the 2020 extreme dry declaration in Zone 3. The Policy did not provide any additional access to water to anyone in Tasmania who may have been experiencing reduced access to water as a result of the dry conditions.

## **6.2 The effectiveness of the Policy's implementation including timeliness of decision-making, efficacy of operational actions and management of water resources**

Decision-making timeframes during the 2020 extreme dry conditions were consistent with the Policy. However, the Policy did not provide for operational actions and management of water resources to benefit farming enterprises during the extreme dry conditions.

## **6.3 The overall effect of the Policy's implementation, both short-term and longer-term, in regard to water resource management in Tasmania**

The implementation of the Policy had no overall effect on either short-term or longer-term water resources management in Tasmania.

# **7 DISCUSSION**

A number of stakeholders who provided feedback for the review suggested that more should be done earlier, to assist with access to water through extreme dry conditions. Excerpts from a few submissions are provided below:

*'Relying on a policy that is delivered at the point of the season when everything is close to stuffed provides no comfort to any aspects of the system'*

*'the policy needs to be more proactive in the winter months.'*

*'If it was implemented earlier there may have been an opportunity to provide extra water which may have provided extra production on farm'*

When extreme dry conditions prevail during the summer months, water systems are typically at their most stressed and competing demands for water are at their peak. At these times, there is very limited opportunity to provide relief to farming enterprises by way of access to water in rivers due to the high potential to impact on water supply for human consumption and/or significant environmental values.

At these times, maintaining access to water resources in accordance with the rules set out in water management planning instruments and water management protocols will usually be required to ensure an appropriate balance between water uses to meet the objectives of the WMA.

Because of this, there are a range of risks associated with the Policy including:

- Risks to water dependent businesses who may have different expectations about what can be enabled under the Policy; and
- A broader risk that expectations of what can be done under the Policy may result in poorer awareness of water availability during dry conditions, and reduced preparedness, risk-based planning and decision making by farming enterprises.

Whilst this is the case in the summer months, the experience from the 2015-16 implementation of the Policy showed that the Policy does have the potential to provide relief in some circumstances. These circumstances are typically when extreme dry conditions prevail in the winter or shoulder period of the irrigation season. At these times, whilst it may be classified as extremely dry, there is typically more water in our freshwater systems relative to an extremely dry summer. There are therefore more options that may be considered to allow for continued access to a water resource without the potential to impact on water supply for human consumption and/or significant environmental values.

## **7.1 Predicting extreme dry conditions**

The Policy identifies extreme dry conditions when they are prevailing. As part of the review, the Department considered whether extreme dry conditions can be predicted to occur before they are prevailing, and whether this could be used to trigger water management responses earlier.

The Bureau of Meteorology releases climate outlook information on a regular basis that gives insight into anticipated rainfall and temperatures over coming months. This information is a useful tool for water managers and farming enterprises to plan ahead for their water requirements and make their growing and stocking decisions. However, this information is not available at a scale or at a level of certainty such that it could be used to justify changes

to the water management regime set out in the water management protocols, Water Management Plans or Water Management Statements.

Identifying extreme dry conditions when they are prevailing remains the most appropriate approach to take in relation to the Policy. The current procedure for identifying whether extreme dry conditions are prevailing is fit for purpose and appropriate given available data.

## **8 CONCLUSION**

The Policy identifies extreme dry conditions whether they are prevailing in the winter or the summer (see WMAB 2018). When extreme dry conditions prevail in the summer, there are typically very limited options available to provide relief to farming enterprises by way of access to water in rivers. This was found to be the case during implementation of the Policy in 2020 in Zone 3, North-East Tasmania.

Planning for dry conditions over the long-term is the most effective way to prepare for dry conditions and other downturns that may impact businesses and society. Importantly, this includes on-farm planning and risk-based management of farm enterprises.

The Government has a role in providing effective regulation and robust entitlement and resource management systems to ensure that our freshwater systems continue to support the many economic, environmental and social values that depend upon them.

## **9 RECOMMENDATIONS**

Some relatively minor changes can be made to better support implementation of the Policy. These do not constitute changes to the Policy itself but would better support its operation.

1. Establish a Departmental Water Advisory Group to advise on potential water management actions when extreme dry conditions are prevailing or are anticipated.

- A Departmental Water Advisory Group would include staff representatives of water operational, assessment and policy areas, staff representative of agricultural policy and planning areas, Inland Fisheries Service and Natural Heritage. This group would meet when extreme dry conditions are prevailing or may prevail in the near future, to discuss the outlook, current storage levels, critical water needs and potential options for managing dry conditions.
- The Group would also discuss critical community information needs to help staff deliver timely key messages.

2. Develop supporting information for the Policy based on a zone by zone analysis of potential management responses and constraints depending on season and water dependent values.

## **10 REFERENCES**

BOM (2020). Annual Climate Summary for Tasmania, Thursday, 9 January 2020, Bureau of Meteorology - Product code IDCKGC57R0

WMAB (2018). Developing procedures for identification of circumstances that may lead to an extreme dry conditions declaration, Water Management and Assessment Branch, Report WMA 2018/07.

WMAB (2020). Tasmanian Statewide dryness summary to end of December 2019, Recurring update to inform Extreme Dry Policy decision making, Report WMA 2020/01.

## **APPENDIX I**

### **Review of the implementation of Ministerial Policy 2015/1 *Water Resource Management During Extreme Dry Conditions***

**2020**

#### **Terms of Reference**

Ministerial Policy 2015/1 *Water Resource Management During Extreme Dry Conditions* was adopted as a Ministerial policy under section 8 of the *Water Management Act 1999* on 4 November 2015 by the Minister for Primary Industries and Water. The Policy was modified in 2019 to address review recommendations made following the implementation of the Policy in 2015. The Policy is supported by Procedures that are set out in Schedules to the Policy.

In accordance with the Policy, on 17 January 2020 the Minister for Primary Industries and Water determined that extreme dry conditions were prevailing in Zone 3, North-East Tasmania and specified that water resources in Zone 3, North-East Tasmania were subject to the implementation of the Policy. In accordance with the provisions in the Policy, on 1 May 2020, the determination lapsed and the implementation period ended.

There is a requirement that the Policy be reviewed within six months after each implementation period. In the case of the 2020 implementation period a review must be undertaken by November 2020.

As specified in the Policy, the review will consider:

- (a) the effectiveness of the Policy in meeting its objectives;
- (b) the effectiveness of the Policy's implementation including timeliness of decision-making, efficacy of operational actions and management of water resources; and
- (c) the overall effect of the Policy's implementation, both short-term and longer-term, in regard to water resource management in Tasmania.

Where applicable, recommendations will be made in relation to what changes the Minister may consider making to the Policy.

## APPENDIX 2

### Summary of water restrictions in Zone 3, North-East

Many of the catchments within Zone 3, North-East were subject to restrictions throughout the irrigation season

#### Ringarooma

Restriction Level/ Flood Take	Dates
Total surety 6 and total surety 5	6/06/2019 – 11/06/2019
Flood take	2/07/2019 – 15/07/2019
Total surety 6 and total surety 5	16/10/2019 – 31/10/2019
Flow sharing	23/12/2019 – 7/01/2020
Total surety 6	8/01/2020 – 15/01/2020
Total surety 6 and total surety 5	16/01/2020 – 22/01/2020
Total surety 6 and total surety 5	18/02/2020
Flood take	6/03/2020 – 8/03/2020
Flood take	3/04/2020 – 8/04/2020

#### Great Forester – Upper

Restriction Level/ Flood Take	Dates
Total Surety 6	5/12/2019 – 8/12/2019
Total surety 6 and total surety 5	9/12/2019 – 22/01/2020
Total surety 6	23/01/2020 – 27/01/2020
Partial surety 6	28/01/2020
Total surety 6	29/01/2020 – 17/02/2020
Partial surety 6	24/02/2020 – 2/03/2020

### Great Forester – Lower

<b>Restriction Level/ Flood Take</b>	<b>Dates</b>
Total surety 6 and total surety 5	17/01/2020 – 23/01/2020
Partial Surety 6	29/01/2020 – 5/02/2020
Total surety 6 and total surety 5	6/02/2020 – 17/02/2020

### Boobyalla

<b>Restriction Level/ Flood Take</b>	<b>Dates</b>
Total surety 6 and total surety 5	4/06/2019 – 12/07/2019
Total surety 6 and total surety 5	1/08/2019 – 6/08/2019
Total surety 6 and total surety 5	9/08/2019 – 18/08/2019
Total surety 6 and total surety 5	23/08/2019 – 30/08/2019
Total surety 6 and total surety 5	16/09/2019 – 30/09/2019
Total surety 6 and total surety 5	28/10/2019 – 31/10/2019
Total surety 6 and total surety 5	18/11/2019 – 28/11/2019
Total surety 6 and total surety 5	2/12/2019 – 4/12/2019
Total surety 6 and total surety 5	9/12/2019 – 24/01/2020
Total surety 6 and total surety 5	7/02/2020 – 10/02/2020

### Tomahawk

<b>Restriction Level/ Flood Take</b>	<b>Dates</b>
Total surety 6 and total surety 5	1/05/2019 – 26/05/2019
Total surety 6 and total surety 5	4/06/2019 – 30/06/2019

Total surety 6 and total surety 5	5/07/2019 – 11/07/2019
Partial Surety 6	12/07/2019
Total surety 6 and total surety 5	15/07/2019 – 23/07/2019
Total surety 6 and total surety 5	1/08/2019 – 8/08/2019
Total surety 6 and total surety 5	12/08/2019 – 19/08/2019
Total surety 6 and total surety 5	23/08/2019 – 6/09/2019
Total surety 6 and total surety 5	16/09/2019 – 22/01/2020
Total surety 6 and total surety 5	26/01/2020 – 18/02/2020
Total surety 6 and total surety 5	26/02/2020 – 1/03/2020

### Little Forester

<b>Restriction Level/ Flood Take</b>	<b>Dates</b>
Total surety 6 and total surety 5	1/05/2019 – 14/05/2019
Total surety 6 and total surety 5	23/12/2019 – 23/01/2020
Total surety 6	28/01/2020 – 29/01/2020
Total surety 6 and total surety 5	30/01/2020 – 2/02/2020
Partial surety 6	3/02/2020 – 4/02/2020
Total surety 6 and total surety 5	5/02/2020 – 18/02/2020
Total surety 6	19/02/2020
Total surety 6 and total surety 5	24/02/2020 – 2/03/2020

### Pipers

<b>Restriction Level/ Flood Take</b>	<b>Dates</b>
Total surety 6	20/12/2019 – 23/12/2019

Total surety 6 and total surety 5	24/12/2019 – 28/01/2020
Total surety 6 and total surety 5	4/02/2020 – 5/02/2020
Total surety 6 and total surety 5	12/02/2020 – 20/02/2020

### **Brid**

<b>Restriction Level/ Flood Take</b>	<b>Dates</b>
Total surety 6 and total surety 5	23/12/2019 – 22/01/2020
Total surety 6	30/01/2020 – 5/02/2020
Total surety 6 and total surety 5	6/02/2020 – 18/02/2020
Total surety 6	19/02/2020
Total surety 6 and total surety 5	24/02/2020 – 24/03/2020

### **Ansons**

<b>Restriction Level/ Flood Take</b>	<b>Dates</b>
Total surety 6 and total surety 5	3/06/2019 – 14/06/2019
Total surety 6 and total surety 5	17/06/2019 – 6/09/2019
Total surety 6 and total surety 5	18/09/2019 – 20/02/2020
Total surety 6 and total surety 5	25/02/2020 – 4/03/2020
Total surety 6 and total surety 5	16/03/2020 – 2/04/2020
Total surety 6 and total surety 5	20/04/2020 – 21/04/2020