

# Water Resource Management During Extreme Dry Conditions

Water Resources Policy  
Policy 2015/1

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Water and Marine Resources Division  
Department of Primary Industries, Parks, Water and Environment



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<b>Version</b>	<b>Author</b>	<b>Reason</b>
November 2015	David Nichols	Water Resource Management During Extreme Dry Conditions signed by Minister and released
September 2018	Nerida Bleakley	Policy amended following ‘Review of the implementation of Ministerial Policy 2015/1 Water Resource Management of Extreme Dry Conditions during 2015-2016’.

# I. Introduction

The *Water Resource Management During Extreme Dry Conditions Policy* is made under section 8(b) of the *Water Management Act 1999*. The purpose of the Policy is to set out water resource management measures to be implemented in Tasmania during extreme dry conditions.

## I.1 Background

### ***Driver for Policy - Extreme Dry Conditions***

Extreme dry conditions affect much of Tasmania from time to time, often driven by the combined effects of El Niño and Indian Ocean Dipole climatic systems. These events 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.

Whilst river flows are greatly diminished under these conditions, the demand for irrigation water is usually high. With the growing season often commencing with very low soil moisture levels, farmers need to commence irrigating earlier, apply more water and irrigate for longer periods in the absence of rainfall.

Tasmania's water resource management system, particularly where it is implemented through water management plans, has been developed, by necessity, in relation to long-term hydrological conditions. Its focus is on managing water resources in regard to the range of climatic conditions prevailing in the majority of years.

In the majority of years, management provisions developed in relation to long-term hydrological conditions provide an appropriate balance between consumptive water needs and environmental water needs. However, the specific procedures within the water management system have not been developed to manage the circumstances occurring in extreme dry years and strict implementation of water management provisions would often result in unacceptable impacts on farming enterprises and regional communities. Such an outcome would not be consistent with the objectives of the *Water Management Act 1999*.

Through this Policy, the Minister for Primary Industries and Water has set out a range of procedures to direct how Tasmania's water resource management system, which includes water management plans, is to be implemented during extreme dry conditions. The application of this Policy will ensure that Tasmania's water resource management system provides an appropriate balance between consumptive water needs and environmental water needs during extreme dry conditions.

It is important to emphasise that this Policy is a complementary measure to the Government's investment in irrigation infrastructure. Irrigation infrastructure has a clear role in providing highly reliable, secure water supplies during dry conditions and Government investment has, in part, focused on that. Irrigation infrastructure provides a different water product however; the high reliability comes from the ability to store and distribute water on demand. This Policy focusses on managing access to water from surface water resources in an appropriate way during extreme dry periods, a measure that should be undertaken regardless of investment in irrigation infrastructure. The implementation of

this Policy will have an eye to the availability of viable, alternative water supplies and it is not intended to interfere in the operation of the water market in Tasmania, nor diminish the importance of investment in irrigation infrastructure.

## 2. Objectives

The *Water Resource Management During Extreme Dry Conditions Policy* details the water resource management procedures that are to be implemented during extreme dry conditions. These procedures will ensure that Tasmania's water resources are appropriately managed during extreme dry periods to meet the objectives of the *Water Management Act 1999*.

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;
- (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.

## 3. Principles

1. *The Policy is to apply to extreme dry conditions only.*
2. *The Policy furthers the Objectives of the Water Management Act 1999 and specifically promotes the sustainable use of water resources during extreme dry periods.*
3. *The Policy is to be consistent with statutory requirements and the National Water Initiative.*
4. *The Policy is to be implemented on a catchment-by-catchment or region-by-region basis.*
5. *The Policy is to apply where viable, alternative water supplies are not readily available throughout a catchment.*
6. *When the Policy is implemented environmental monitoring should be conducted to assess the potential impacts of low flows on water dependent ecosystems.*
7. *The Policy is to be reviewed within 6 months after each implementation period has ended.*

## 4. Operation

This Policy is to be implemented whenever the Minister for Primary Industries and Water determines that extreme dry conditions are prevailing. The Minister is to make a determination based on multiple lines of evidence and for that purpose, is to take into consideration the following:

- a. assessment of appropriate meteorological, hydrological and agricultural indicators of extreme dry;
- b. assessment of on-ground conditions;

- c. seasonal rainfall and streamflow outlook forecasts made by the Bureau of Meteorology;
- d. the presence and strength of El Niño and Indian Ocean Dipole climatic systems;
- e. the geographic extent to which Tasmania, or significant parts of Tasmania, are, or are likely to be, affected;
- f. the likelihood of long-term restrictions being in place without the operation of this Policy.

Schedule 1 outlines procedures for the identification of conditions that will support an extreme dry conditions declaration.

In making a declaration, the Minister is to specify, the geographic extent to be subject to the implementation of this Policy. Once the Minister has determined that extreme dry conditions are prevailing, this Policy is to be implemented until it is determined that extreme dry conditions no longer prevail as outlined in Schedule 2 or on 1 May unless there is a formal request for it to remain in place. Should a formal request for extension be made, the procedures outlined in Schedule 1 will be followed to justify the policy remaining in place until conditions outlined in Schedule 2 are met.

## **5. Water Resource Management Procedures**

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

As noted above, Tasmania's water resource management system has been developed in relation to long-term hydrological conditions. One of the key management provisions, the restriction regime, can be implemented in a relatively routine and simple manner in most years, where the balanced outcome between consumptive water needs and environmental water needs is generally evident.

However, to ensure an appropriate balance between consumptive water needs and environmental water needs during extreme dry conditions, the restriction regime needs to be implemented in an adaptive manner.

This Policy directs, procedurally, how decisions on the implementation of restrictions is 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.

#### ***Procedures to be Implemented During Extreme Dry Conditions***

Schedule 3 sets out procedures for making decisions on the implementation of restrictions during extreme dry conditions for water resources subject to a water management plan.

Schedule 4 sets out procedures for making decisions on the implementation of restrictions during extreme dry conditions for water resources not subject to a water management plan.

## 5.2 Conveyance of Water

Part 6A of the *Water Management Act 1999* provides for the conveyance of water that has been taken previously in accordance with the Act, via a watercourse. This measure is an effective means by which farmers can secure water supplies, particularly during dry conditions.

In its simplest form, conveyance of water involves the downstream transfer of stored water from one location to another, by releasing the water that has been taken and stored into a watercourse and then extracting that water at the downstream location. In the normal course of events, approval of this activity considers matters including conveyance losses, and typically assumes that the water is conveyed to the extraction point.

There is scope to give greater flexibility to farmers to convey water during extreme dry conditions. Removing the requirement to convey water to the exact point of extraction would be of assistance to some farmers. This would occur where water is released from a dam on a tributary for example, with the extraction point located on the main river upstream of its confluence with the tributary. In such a case, the conveyed water released into a tributary would pass downstream into the main river, whilst water would be extracted from the main river upstream of the confluence.

The second measure in regard to conveyance of water is to forgo all or part of a requirement to account for conveyance losses. This means that, the volume of water able to be extracted may be closer to or equal to the volume of water released.

### ***Procedures to be Implemented During Extreme Dry Conditions***

1. Where relevant, approve and issue watercourse authorities, under sections 123C and 123D of the *Water Management Act 1999* 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, approve and issue watercourse authorities, under sections 123C and 123D of the *Water Management Act 1999*, 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 and consideration of conveyance losses will be considered on a case by case basis.

These procedures do not apply to water entities.

## 5.3 Compliance and Enforcement

Compliance and enforcement activities undertaken by the Department have historically had a strong focus on education to encourage compliant behaviour, rather than a simple approach using hard enforcement actions. This approach is widely accepted as the most effective way to encourage long-term behavioural change.

During extreme dry conditions, where there are likely to be high levels of stress and potential hardship within the farming community, the Department will continue to take this approach, working with catchment communities wherever possible in the management of water resources and compliance activities.

## ***Procedures to be Implemented During Extreme Dry Conditions***

The Department will work with catchment communities wherever possible to achieve the best outcome in managing water resources and undertaking compliance activities during extreme dry conditions.

### **5.4 Environmental Monitoring**

When this Policy is implemented environmental monitoring and reporting will be undertaken to assess potential impacts of low flows on ecosystems that depend on the water resource. The Department will determine 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.

### **5.5 Review**

This Policy will be reviewed within 6 months after each implementation period has ended. 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;
- (c) the overall effect of the Policy's implementation, both short-term and longer-term, in regard to water resource management in Tasmania.

## Schedule I Procedures for the identification of conditions that may lead to an extreme dry conditions declaration

Assessment of extreme dry conditions is to be undertaken on a zone by zone basis across river catchment groupings listed in Table I.

Preliminary analysis will be based on 3 month, 6 month and 12 month Standardised Precipitation Index (SPI) calculations from representative rainfall data sourced from each zone listed in Table I.

The threshold for the existence of extreme dry conditions will approximate a 1 in 10 year (or longer) 'dry' event.

Should such conditions exist for the 3 month, 6 month and 12 month Standardised Precipitation Index (SPI), comment from DPIPWE Water Operation's staff as to the level of water scarcity across 'dry' catchments of interest and catchment storage positions will be requested.

Should the conditions above prevail, then assessment of the following will be undertaken:

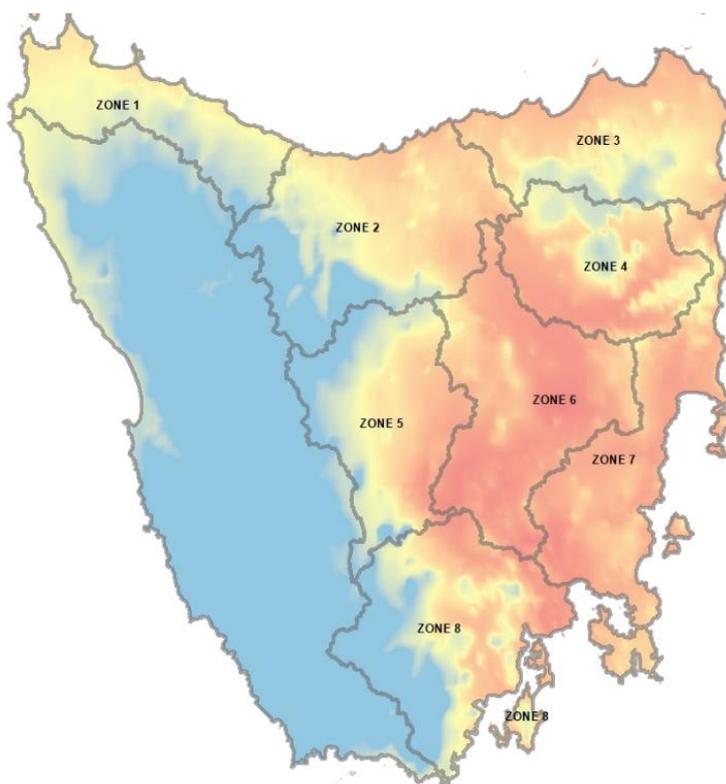
- a. Analysis of hydrological (flow) and agricultural (soil moisture) indicators should it be necessary. *Note: soil moisture conditions for a given area will be based on those provided by the Bureau of Meteorology's AWRA-Landscape model;*
- b. The presence of El Niño and Indian Ocean Dipole climatic systems;
- c. Seasonal rainfall and streamflow forecasts<sup>1</sup> 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;
- e. The likelihood of long-term restrictions being in place without the operation of this Policy.

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<sup>1</sup> For example <http://www.bom.gov.au/climate/outlooks/##/rainfall/median/seasonal/0>

**Table 1.** River catchments included in Extreme Dry Conditions assessment zones. Catchments are grouped according to similarity in climatic and hydrological conditions.

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



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

## **Schedule 2 Procedures for the identification of conditions that may lead to a declaration that extreme dry conditions no longer prevail.**

While the Extreme Dry Conditions Policy is in place, should the following conditions and thresholds be met, then a declaration that extreme dry conditions no longer prevail will be made, and the policy will be revoked.

1. Rainfall conditions that result in the 3 month Standard Precipitation Index returning to 0 or greater reflecting average or above average rainfall;
2. That soil moisture levels have time to respond to increased rainfall (1 month);
3. The passing of weather events that provide high rainfall and elevated stream flow conditions;

Should this Policy be active on 1 May of any year, the Policy will be revoked unless there is a formal request for it to remain in place. Should this occur then the procedures outlined in Schedule 1 will be followed to justify the Policy remaining in place.

## Schedule 3 Procedure for the Implementation of Restrictions on the Taking of Water under a Water Management Plan while Extreme Dry Season Policy is in effect.

### S3.1 Implementation of Restrictions

- a. When flow reaches a restriction threshold set out in a water management plan, an Authorised Officer will determine the need for implementing a restriction on the taking of water.
- b. Before issuing a restriction notice under section 92 of the *Water Management Act 1999*, an Authorised Officer will consider the following:
  - (i) whether any significant rainfall is forecast for the area, which is typically a rainfall of greater than 10 mm depending on the nature of the catchment;
  - (ii) the volume of water required to meet critical human and animal welfare needs;
  - (iii) the volume of water being taken for irrigation and the ongoing demand for irrigation water;
  - (iv) crop vulnerability factors;
  - (v) the availability of viable, alternative water supplies and the ability of the water market to provide access to alternative water supplies;
  - (vi) the surety of rights to water held by relevant licensees and the priority of water access set out under section 94(2) of the Act;
  - (vii) the needs of ecosystems that depend on that water resource for water, and specifically whether the continued taking of water for irrigation is likely to have a significant impact matters of national environmental significance.
- c. Where a restriction on the taking of water is likely to result in significant crop damage or failure and there are no viable alternative supplies of water available, an Authorised Officer may withhold the issuing of a restriction notice under section 92 of the Act.
- d. If the continued taking of water for irrigation is likely to have a significant impact on a matter of national environmental significance then a restriction notice under section 92 of the Act must be applied, unless the taking of water is allowed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.
- e. Where the Authorised Officer intends to withhold the issuing of a restriction notice in catchments Inland Fisheries have an interest the Director of Inland Fisheries is to be consulted.
- f. Where the issuing of a restriction notice under section 92 of the Act is withheld, this decision is to be reviewed monthly, for as long as these procedures apply, in regard to the matters set out above.
- g. Where an Authorised Officer withholds the issuing of a restriction notice for any of

the circumstances set out above, the Authorised Officer is to:

- (i) work with water users to ensure the orderly taking of available water during the relevant period, taking into account surety of users and put in place arrangements for ensuring access to water, as the highest priority, for critical human and animal welfare needs;
- (ii) put in place specific arrangements required to avoid any significant impacts on matters of national environmental significance;
- (iii) contact key staff with relevant expertise within the Department for advice on monitoring;
- (iv) it is the responsibility of the Manager of Water Operations Branch to obtain advice from environmental experts.

### **S3.2 Lifting of Restrictions**

- a. Where restrictions on the taking of water are in place, a notice is to be issued under section 94 of the Act, revoking the relevant notice of restriction issued under section 92, at the earliest possible opportunity.
- b. In considering when to issue a revocation notice under section 94 of the Act, an Authorised Officer will consider the following:
  - (i) the level of river flow;
  - (ii) whether any significant rainfall is forecast for the area;
  - (iii) the volume of water required to meet critical human and animal welfare needs;
  - (iv) the likely demand for water for irrigation;
  - (v) crop vulnerability factors;
  - (vi) whether the taking of water for irrigation is likely to have an impact on the needs of ecosystems that depend on that water resource for water, and specifically whether the continued taking of water for irrigation is likely to have a significant impact matters of national environmental significance.
- c. Where a revocation notice under section 94 of the Act is issued, the need for further restrictions is to be reviewed in accordance with the implementation procedures above, for as long as these procedures apply.
- d. Where an Authorised Officer issues a revocation notice, the officer is to:
  - (i) work with water licence holders to ensure the orderly taking of available water during the relevant period;
  - (ii) put in place specific arrangements required to avoid any significant impacts on matters of national environmental significance.

### **S3.3 Documentation of Decision**

- a. Any decision to issue a notice of restriction under section 92 of the Act, lift a restriction or withhold the issuing of a notice, must be documented.
- b. Any decision to issue a notice under section 94 of the Act, revoking a notice of

restriction issued under section 92 of the Act, must be documented.

c. Documentation must include the following:

- (i) the name of the decision maker and the date of the decision;
- (ii) the authority of the decision-maker;
- (iii) a description of the decision;
- (iv) the basis for the decision, referenced against section 91 of the Act and these procedures;
- (v) any supporting information (stream gauge information, weather forecasts etc.);
- (vi) a description of the action taken in regard to the decision including expert advice that has been sought.

## Schedule 4 Procedure for the Implementation of Restrictions on the Taking of Water from a Watercourse Not Subject to a Water Management Plan while Extreme Dry Season Policy is in effect.

### S4.1 Implementation of Restrictions

- a. When stream flows are such that there is a concern that there is likely to be an inadequate supply or overuse of water, an Authorised Officer will determine the need for implementing a restriction on the taking of water.
- b. Before issuing a restriction notice under section 92 of the *Water Management Act 1999*, an Authorised Officer will consider the following:
  - (i) whether any significant rainfall is forecast for the area, which is typically a rainfall of greater than 10 mm depending on the nature of the catchment;
  - (ii) the volume of water required to meet critical human and animal welfare needs;
  - (iii) the volume of water being taken for irrigation and the ongoing demand for irrigation water;
  - (iv) crop vulnerability factors;
  - (v) the availability of viable, alternative water supplies and the ability of the water market to provide access to alternative water supplies;
  - (vi) the surety of rights to water held by relevant licensees and the priority of water access set out under section 94(2) of the *Water Management Act 1999*;
  - (vii) the needs of ecosystems that depend on that water resource for water, and specifically whether the continued taking of water for irrigation is likely to have a significant impact on matters of national environmental significance.
- c. Where a restriction on the taking of water is likely to result in significant crop damage or failure and there are no viable alternative supplies of water available, an Authorised Officer may withhold the issuing of a restriction notice under section 92 of the Act.
- d. If the continued taking of water for irrigation is likely to have a significant impact on a matter of national environmental significance then a restriction notice under section 92 of the Act must be applied, unless the taking of water is allowed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.
- e. Where the Authorised Officer intends to withhold the issuing of a restriction notice in catchments Inland Fisheries have an interest the Director of Inland Fisheries is to be consulted.
- f. Where the issuing of a restriction notice under section 92 of the Act is withheld, this decision is to be reviewed monthly, for as long as these procedures apply, in regard to the matters set out above.
- g. Where an Authorised Officer withholds the issuing of a restriction notice for any of the circumstances set out above, the Authorised Officer is to:

- (i) work with water users to ensure the orderly taking of available water during the relevant period, taking into account surety of users and put in place arrangements for ensuring access to water, as the highest priority, for critical human and animal welfare needs;;
- (ii) put in place specific arrangements required to avoid significant impacts on matters of national environmental significance.
- (iii) contact key staff with relevant expertise within the Department for advice on monitoring.
- (iv) it is the responsibility of the Manager of Water Operations Branch to obtain weekly updates from environmental experts.

## **S4.2 Lifting of Restrictions**

- a. Where restrictions on the taking of water are in place, a notice is to be issued under section 94 of the Act, revoking the relevant notice of restriction issued under section 92, at the earliest possible opportunity.
- b. In considering when to issue a revocation notice under section 94 of the Act, an Authorised Officer will consider the following:
  - (i) the level of river flow;
  - (ii) whether any significant rainfall is forecast for the area;
  - (iii) the volume of water required to meet critical human and animal welfare needs;
  - (iv) the likely demand for water for irrigation;
  - (v) crop vulnerability factors;
  - (vi) whether the taking of water for irrigation is likely to have an impact on the needs of ecosystems that depend on that water resource for water, and specifically whether the continued taking of water for irrigation is likely to have a significant impact on matters of national environmental significance.
- c. Where a revocation notice under section 94 of the Act is issued, the need for further restrictions is to be reviewed in accordance with the implementation procedures above, for as long as these procedures apply.
- d. Where an Authorised Officer issues a revocation notice, the officer is to:
  - (i) work with water licence holders to ensure the orderly taking of available water during the relevant period;
  - (ii) put in place specific arrangements required to avoid any significant impacts on matters of national environmental significance.

## **S4.3 Documentation of Decision**

- a. Any decision to issue a notice of restriction under section 92 of the Act, lift a restriction or withhold the issuing of a notice, must be documented.
- b. Any decision to issue a notice under section 94 of the Act, revoking a notice of restriction issued under section 92 of the Act, must be documented.

- c. Documentation must include the following:
- (i) the name of the decision maker and the date of the decision;
  - (ii) the authority of the decision-maker;
  - (iii) a description of the decision;
  - (iv) the basis for the decision, referenced against section 91 of the Act and these procedures;
  - (v) any supporting information (stream gauge information, weather forecasts etc.);
  - (vi) a description of the action taken in regard to the decision including expert advice that has been sought.