

# Great Forester River Catchment

WATER MANAGEMENT PLAN –  
STATUTORY ASSESSMENTS

OCTOBER 2020

DRAFT – FOR PUBLIC EXHIBITION

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### Preferred Citation

DPIPWE (2020). *Great Forester River Catchment Water Management Plan – Statutory Assessments*. DRAFT. Water and Marine Resources Division, Department of Primary Industries, Parks, Water and Environment, Hobart.

The Department of Primary Industries, Parks, Water and Environment (DPIPWE)

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 Resources Group 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 facilitating water infrastructure development projects.

# Contents

1	Introduction .....	1
2	Likely detrimental effects of the Plan on water quality.....	3
3	Capacity of resource to meet existing and future demands for water .....	5
4	Effects of the Plan on the needs of existing and future users	8
4.1	Summer cease-to-take threshold .....	8
4.2	Winter cease-to-take threshold.....	9
4.3	Take periods.....	9
4.4	Water available for allocation.....	9
4.5	Opportunistic flow access.....	10
4.6	Groundwater management.....	10
5	References.....	12

# I Introduction

This Statutory Assessments document forms part of the Great Forester River Catchment Water Management Plan and provides details of assessments required under the *Water Management Act 1999* (the Act).

Under the Act, a water management plan is to include:

- (a) a statement of the objectives of the plan, including the environmental objectives (refer to section 2.2.2 the Plan); and
- (b) a description of the water regime that best gives effect to the environmental objectives and other relevant objectives of the plan (refer to section 3.1.1 of the Plan); and
- (c) an assessment of the ability of that water regime to achieve the environmental objectives and other relevant objectives of the plan (refer to section 3.1.2 of the Plan); and
- (d) an assessment of likely detrimental effects of the plan on the quality of water (refer to section 2 of this document).

Additionally, as this Plan provides for the allocation of water, it must:

- (e) include an assessment of the capacity of the relevant resource to meet the likely demands for water by existing and future users (refer to section 3 of this document); and
- (f) take into account the needs of existing and future users and state the likely effect of the plan on those users, including any effect on businesses carried on by those users (refer to section 3 of this document).

Components (a) – (c) listed above are provided in the Plan document, as noted. Details of assessments (d) – (f) are provided in this document. While presented separately, this Statutory Assessments document forms part of the Great Forester River Catchment Water Management Plan.

An assessment of the impacts of the Plan was undertaken in consultation with key stakeholders through the Great Forester River Catchment Water Management Plan Consultative Group (DPIPWE 2020a).

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# 2 Likely detrimental effects of the Plan on water quality

Good quality water is essential for animal life, a healthy environment and a flourishing community.

Under the *State Policy on Water Quality Management 1997*, Protected Environmental Values (PEVs) have been identified for surface waters within the Dorset and Break O'Day Municipality Areas (DPIWE 2005), including the Great Forester River catchment. PEVs are (social, recreational, environmental and economic) values or uses of a waterbody that supports the protection of (or part of) that waterbody and form the basis of water quality management. The surface water PEVs in the Great Forester-Brid catchment are (DPIWE 2005): Protection of Aquatic Ecosystems (Modified), Recreational Water Quality and Aesthetics, Raw Water for Drinking Water Supply, Agricultural Water Uses, and Industrial Water Supply. Default guideline values (DGVs) for aquatic ecosystems (EPA 2013) have also been derived for aquatic ecosystems in accordance with the National Water Quality Management Strategy and are used as a guide for maintaining water quality.

Water quality was also identified as being an important value with respect to the environment, irrigation, stock and domestic supply, and access to potable water, according to a recent survey of water-related values in this catchment (Kelly 2018). Good water quality for town water supply is highly valued as it reduces the cost of processing potable water (Kelly 2018).

Current water quality values in the Great Forester River catchment are not well known but the links between flow and water quality, while complex, are well recognised. It is regarded that maintaining key elements of the water regime in the river system will support important ecological processes to occur, that will in turn, affect water quality in a positive way (DPIE undated).

Water quality in the Great Forester River can deteriorate if there are insufficient baseflows (resulting in increased temperature and low dissolved oxygen) and/or inadequate high flows (reduced flushing/movement of sediment and organic matter through the system).

The Plan includes a number of provisions (e.g. low and high flow access thresholds, and water allocation limits) that promote a water regime that broadly protects key features of the flow regime and provides water access in a way that manages risks associated with extraction. The rules of the Plan support maintaining key ecological and geomorphological processes, while allowing for extraction of water for community and commercial purposes.

In doing so, it is considered that the flow conditions that are most likely to lead to a reduction in water quality - for example, very low flow or cease-to-flow events - are not likely to occur with any greater frequency or duration as a result of the water management regime provided by the Plan. Implementation of clearer low flow access rules in the Lower Great Forester River Water Management Zone may reduce the occurrence of these type of events.

Conveyance of water via a watercourse will need to be assessed and approved in accordance with Part 6A of the Act. A key consideration in such assessments is whether there are likely to be any detrimental impacts on water quality.

Agricultural and other industry practices relating to land clearing, stock access to riparian areas and the use of agricultural chemicals such as fertilisers, herbicides and pesticides have the potential to impact on water quality of the river. The Water Management Plan cannot address these impacts on water quality in the Great Forester River catchment, but they can be lessened by implementing flow measures that protect key components of the 'natural' water regime.

It is expected that the taking of water from the Great Forester River and its tributaries will have an impact on water quality, however with appropriate water management (implementation of access rules and allocation limits) in place, it is believed that impacts can be maintained within acceptable levels. It is considered that the Plan is unlikely to cause any detrimental effects on water quality in rivers in the Great Forester River catchment through the direct extraction or storage of water.

# 3 Capacity of resource to meet existing and future demands for water

The Great Forester River catchment lies in the north-east of Tasmania and has moderate rainfall that generally follows a distinct seasonal pattern throughout the catchment – wetter in winter and drier in summer. Extended dry periods can however, occur at certain times.

The greatest factor effecting the capacity of the water resource in the Great Forester River catchment to meet the needs of water users is climate change. Future climate predictions suggest that the north-east will experience a decline in rainfall and as a result runoff will decrease (CSIRO 2009). A recent analysis of the climate – rainfall, evaporation and temperature – for the Great Forester River catchment (DPIPWE 2020b) indicated that some effects of climate change are already being seen. Average annual rainfall is declining and temperature & evaporation are increasing. This ultimately leads to a reduction in yield. Water yields from the catchment are declining and are following a trajectory towards what is predicted under a 'dry' future climate. The annual average water yield across the Great Forester-Brid catchment is predicted to reduce by 14% (DPIPWE 2020b). Although a decline in rainfall has been observed at a local level in recent decades, changes to the frequency and severity of extreme weather events (heatwaves and flooding) across Tasmania are also expected to occur (ACE CRC 2010).

The Great Forester River catchment currently has a median annual yield of 145,500 ML. 370 ML of water is allocated at Surety 1 water to supply Scottsdale with essential town water. This is an insignificant volume in comparison to this catchment's median annual yield, and hence it is likely that Surety 1 water would be available all of the time. Where future population growth and hence demand for town water exceeds the current allocation, there may be need to address a shortfall of Surety 1 essential town water supply. Water is also allocated for town water use at Surety 5 which is subject to the same rules as commercial water users. As there is no further high surety summer water available, any additional Surety 5 water required for town water (for the summer take period) in the future will need to be sourced through the existing water market.

Environmental water (Surety 2) is not allocated as a volume of water but is provided through the implementation of water allocation limits and water access rules to manage extraction. The Plan stipulates monthly low flow access thresholds for the entire year to protect baseflows in the river and groundwater, and an opportunistic take – access threshold to manage extraction at high flows. The water allocation limit has been reached for summer and no new high surety water will be allocated for that take period, other than approved historic use (examples given below) that will be formalised and included in the limits of the Plan. Water for the environment should be met within the capacity of the resource, except during extremely dry periods.

Approximately 29,200 ML of water has been allocated (for summer and winter) at Surety Levels 3, 5, 6 and 7 for commercial or irrigation use, representing 20% of the median annual yield. An additional 9400 ML is provided (across the whole year) as non-consumptive water for aquaculture purposes.

The Great Forester River catchment area has a rich agricultural history with commercial water users primarily coming from this sector. The demand for surface water has been steadily increasing in the past 15 years, and reflected in an increase in water allocations granted during this time (DPIPWE 2020b). Groundwater use (particularly in the lower part of the catchment) also appears to be growing, providing a supplementary source of water to those water users that have access to it. The impact of this use on the groundwater resource has been assessed as being low at this time (DPIPWE 2020b).

The capacity of the surface water resource to meet the demands of commercial water users varies according to season and surety level of allocation. Water allocated at Surety 5 and 6 during the winter take period can be considered as generally reliable. Even with winter low flow thresholds in place, water users can expect to get access to winter water (on average) 9 years in 10 (DPIPWE 2020b). During summer, however, access is less reliable. A large volume of Surety 6 water (approximately 21,100 ML) was allocated as part of the 2003 Plan, reflecting what was identified as historical water use in the 2002 Water Use Surveys. The effect of this high allocation volume means that it is likely that the full volume of Surety 6 water would be available at lower reliability (below 50-80% reliability) than would normally be expected. Based on an analysis of days of summer access in the last 15 years (DPIPWE 2020b):

- Surety 5 licence holders had unrestricted access (for more than 80% of days) 9 out of 15 years and unrestricted access (for more than 50% of days) 12 out of 15 years.
- Surety 6 licence holders had unrestricted access (for more than 80% of days) 6 out of 15 years and unrestricted access (for more than 50% of days) 12 out of 15 years.

Under the Plan, this catchment is now fully allocated during summer. The exception to this is water historically taken within the tidal area (the zone at the bottom of the catchment influenced by tidal movement) that will be allocated and included as summer Surety 6 water under this Plan, and any adjustments to allocations that need to occur to update take periods on water licences so that they are consistent with this Plan. These

allocations will be recognised as historic use and authorised on a similar basis to how other water users had their historic use allocated in 2003.

While this does not allow new summer water allocations to be granted, it does ensure that the reliability of existing entitlements is not impacted by further allocation of water. Management of access under this Plan ensures this ongoing use is unlikely to impact the environment or other water users and ensures that licencees will be able to take water on which their business have become dependent.

Water is still available for allocation during the winter take period. This Plan also makes water available under opportunistic take - access rules. Whilst this water is unreliable in nature, and available only on an infrequent basis, it does provide some capacity to meet possible demand for increased water extraction in the future.

Some water users in the Great Forester River catchment have also taken the opportunity to purchase high reliability water through Tasmanian Irrigation's Great Forester Irrigation Scheme and there is potential to access additional water through the upcoming Scottsdale Irrigation Scheme due to be in operation by the 2020/21 irrigation season.

An assessment based on Land Capability Classes 1 to 4 (irrigable land) within the Great Forester River catchment indicates the potential for an additional 9.7% or 6200 hectares of the Plan area to be expanded for irrigation purposes, assuming all irrigable land is available for further development (DPIPWE 2020b). Given an average application rate of 3 ML per hectare per year (DPIPWE 2015), this would require a potential maximum irrigation water demand of 18,600 ML annually. This is a greater volume than what can be allocated through the natural river system. Winter water is available to support some future development. Groundwater is also available although access, reliability and quality varies and it may not a viable option in many parts the catchment.

Whilst this Plan does not provide for any further water allocations during summer, it does not prevent further development of the catchment's water resources in the future. The availability of new reliable water supplies to support agricultural development and other uses is now largely provided by the water market (especially during the summer period) through trading or transferring existing water allocations in the Great Forester River catchment. Priority of access and thresholds provided by this Plan clearly define and provide security for different classes of water. The rules will support the water market to function effectively by supporting ongoing development and new or higher value uses of the water resource.

# 4 Effects of the Plan on the needs of existing and future users

The likely effects of this Plan on existing and future users, including any effects on businesses carried out by those users, are considered in the context of and limited to the management of water resources. This Plan sets out a management framework for the water resources of the Great Forester River catchment, and hence any effects of this Plan must be considered strictly in relation to changes in access to water under this Plan, both in terms of the volume of water available and the way that water may be taken.

Overall, the benefits of this Plan intend to increase certainty and security for water-dependent businesses through the provision of legally recognised water entitlements, and the application of a fair and equitable framework to share this catchment's water resources. This Plan undoubtedly provides benefits by establishing limits for allocation at different levels of reliability and thus outlines a clear hierarchy of access to water for commercial and other uses. The Plan also specifies access rules that ensure the taking of water is conducted in an orderly and equitable fashion, thereby ensuring that existing water entitlements are clearly defined and not compromised.

## 4.1 Summer cease-to-take threshold

The summer cease-to-take threshold (or Managed Minimum Flow) of 30 ML/day (measured at the flow gauging station, 2 km upstream of the Forester Road Bridge) (during the irrigation season – November to April) will remain unchanged. Improvements have been made to the way it is implemented in the Lower Great Forester River Water Management Zone to provide clarity and certainty to water users, while maintaining a reasonable flow through the system. There will no longer be a requirement in the Plan to make decisions regarding restriction management, in the

Lower Great Forester River Water Management Zone, via an expert panel. However, the Plan does not preclude the review or amendment of access arrangements above the access thresholds specified in the Plan.

The greatest impact on river flow that will affect water users in the future is climate change and the potential resultant decrease in runoff and yield (DPIPWE 2020b), as well as climate variability (frequency and severity of extremes such as flooding and heatwaves) (ACE CRC 2010). While the Plan cannot prevent these changes from occurring, the limits and management practices outlined in the plan aim to lessen the impact in the future.

## **4.2 Winter cease-to-take threshold**

Contemporary water management recognises that risks to sustainable water access exist throughout the year and flow management provisions are now required for the entire year to manage risks to water users and the environment. This Plan introduces cease-to-take thresholds that apply on a monthly basis during the winter period (May-October). The low flow thresholds for winter (based on a 10<sup>th</sup> percentile monthly flow statistic for winter months) attempt to balance the need for reliable access to water by users with the needs of the environment. A water access analysis, based on the winter monthly thresholds (using observed flow at the lower river gauging station), showed that access to water for greater than 140 days during the winter period occurs on average 9 years in 10 (DPIPWE 2020b). The potential reduction in water access during winter should have minimal impact on water users.

## **4.3 Take periods**

Anecdotally, patterns of water use appear to be changing due to a shift in the traditional seasons. Water users are requiring access to water for irrigation earlier in the season than has occurred in the past (i.e. October and November instead of December). This was recognised when the Plan was first prepared in 2003 (DPIWE 2003) with the irrigation season defined as 1 November to 30 April. This will remain in this Plan as the summer take period. The winter take period in this Plan is 1 May to 30 October. Some licences will need to be amended to align with these take periods. The Department will assess options for water users that are affected by changes to their take periods to ensure there is minimal impact on their current access.

## **4.4 Water available for allocation**

Allocation volumes have been steadily increasing in the past 15 years. This is largely due to a significant increase in Surety 6 summer water allocated (approximately 21,100 ML) identified as historic use through the development of the 2003 Plan, and a gradual increase in winter water allocations of approximately 10,000 ML. The volume of Surety 6 summer water was allocated prior to the adoption of the Department's current allocation decision framework and reflects the maximum volumes of water historically used. The effect of this high allocation volume means that it is likely that the full volume of Surety 6 water would be available at lower reliability than expected (i.e.

below 50-80% reliability). As a result of the high allocation volumes, restrictions during dry summer periods can be severe. Given the risks associated with the high levels of water allocation and to ensure no further impact on water user's entitlements, there will be no more water allocated for the summer period. Water is available for allocation for access during winter.

## 4.5 Opportunistic flow access

Even though the summer water allocation has been capped, the Plan provides the opportunity for water users to take additional water during flood events, once a high flow threshold (of 1200 ML/day) has been reached. The opportunistic flow – access threshold is a new addition to the water access arrangements in the Plan. While this water has a lower reliability than Surety 5 and 6 water, it will mostly benefit water users that have instream storage. In the Great Forester River catchment, the majority of commercial dams are instream and capture flood water as it passes through. Inclusion of the opportunistic take – access threshold in the Plan authorises licenced water users to take and use this water, providing greater access to water than has previously occurred. Infrequency of occurrence and the short time that flow usually remains above the opportunistic – take access threshold does, however, make this water less reliable and difficult for direct take water users to take advantage of the floodwater.

## 4.6 Groundwater management

The 2003 Plan proposed the introduction of a groundwater licensing system within the first 5 years of the Plan, which has not been put in place. Groundwater use mostly occurs in the lower part of the Great Forester River catchment (near Bridport), where the majority of higher yielding successful bores are located. Groundwater provides a supplementary source of water to those water users that have access to it. As the catchment is fully allocated for surface water during the summer period, there is the potential for the future demand (in summer) to be met by increased use of groundwater resources.

Groundwater discharge is a significant contributor to stream flows in the catchment, which has important implications both for surface water availability and for water quality. Inadequately or ineffectively regulated groundwater abstraction may lead to unsustainable levels of extraction with time, particularly at the local scale. This could cause a number of adverse future impacts (e.g. unsustainable reductions to groundwater discharge to streams or to groundwater-dependent ecosystems (e.g. McKerrows Marsh) or impacts on access by existing surface and/or groundwater users, etc.).

An assessment of risk to groundwater resources from groundwater development and water extraction indicates that the current risk is low (DPIPWE 2020b). At this stage the need for a groundwater licensing system does not seem warranted and as such, is not included in this Plan. Accountability and record keeping will be required by groundwater users as per the *Water Management Regulations 2019*. Groundwater risk will be monitored and reviewed as significant changes to groundwater use during the life of the Plan could change the current risk profile. The impact on water users will

remain unchanged unless a significant change to the current level of groundwater risk is identified.

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