

Water Management Planning
Report Series

Water Management Report
for the
Sassafras Wesley Vale
Water Management Plan

April 2009

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The Department of Primary Industries and Water (DPIW)

The Department of Primary Industries and Water 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 Division provides a focus for water management and water development in Tasmania through a diverse range of functions, including implementing the *Water Management Act 1999*, the Water Development Plan for Tasmania 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.

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1. Introduction

This report presents information on the current water allocations and management in the Sassafras Wesley Vale area. The report has been prepared by the Water Policy and Planning Branch in collaboration with the Regional Water Management Officers for the area, and is being used as background information for the development and implementation of the Sassafras Wesley Vale Water Management Plan.

1.2 Background to the catchment

The Sassafras Wesley Vale area is situated on the central north coast of Tasmania east of Devonport. The area is bounded in the south west by the Mersey River catchment, to the east by Port Sorell and to the south by State Forest.

The area falls within the Latrobe local government area. Some of the local government area falls outside the area of the plan, but the statistics are largely consistent with the Plan area. The main towns in the area include Wesley Vale, Sassafras, Port Sorell and Latrobe to the west. The population of the local government area in 2006, including Latrobe, was 8,630 people. The largest employers in the local government area are in education, vegetable growing and food services.

Most of the land use in the area is irrigated agriculture or dry land agriculture on rich basalt derived soils. The area is best known for its vegetable growing and poppy growing, with some dairying. The area is of variable relief and slope, with residual dolerite, Parmeener and basalt hills either protruding from or capping deep Tertiary basin sediments. Land capability in the area is suitable for occasional cropping and grazing (land capability class 3 and 4). But, some parts of the area are class 2 land, which is suitable for more intensive cropping and grazing.

Most of the water in the area comes from rivulets, creeks, springs and groundwater extraction and is used for the irrigation of vegetable and poppy crops. The main town water supply for Port Sorell comes from a reticulated system, which uses water from the Forth River and is administered by Cradle Coast Water.

Within the broader Sassafras Wesley Vale area there are four management catchments based on the four main water resources in the area, and two sub-areas, which are groups of small disparate streams that flow from springs into Bass Strait or Port Sorell Estuary (Figure 1). Each of the catchments are listed below.

Management Catchment/s

- Panatana Rivulet catchment and its tributaries including but not exclusive to Appleby Creek, Tullamona Creek, Westford Creek and Eastford Creek. Flows into Port Sorell.
- Greens Creek catchment and its tributaries. Flows into Port Sorell.
- Pardoe Creek catchment and its tributaries.
- Andrews Creek catchment and its tributaries.
- Northern Sands catchments include small streams that are not in the Pardoe Creek or Andrews Creek catchment that flow into Bass Strait or the northern part of Port Sorell, including but not exclusive to Poyston Creek.
- Port Sorell catchments include all small streams that flow into Port Sorell that are not in Greens Creek or Panataua Rivulet catchments.

Many of the streams in the catchment are highly modified and extensively dammed. The structure of the stream channels often leads to the construction of in-stream dams over springs. The topography, geology and large amounts of groundwater in the area mean that flow is largely regulated by a significant amount of surface water - groundwater interaction.

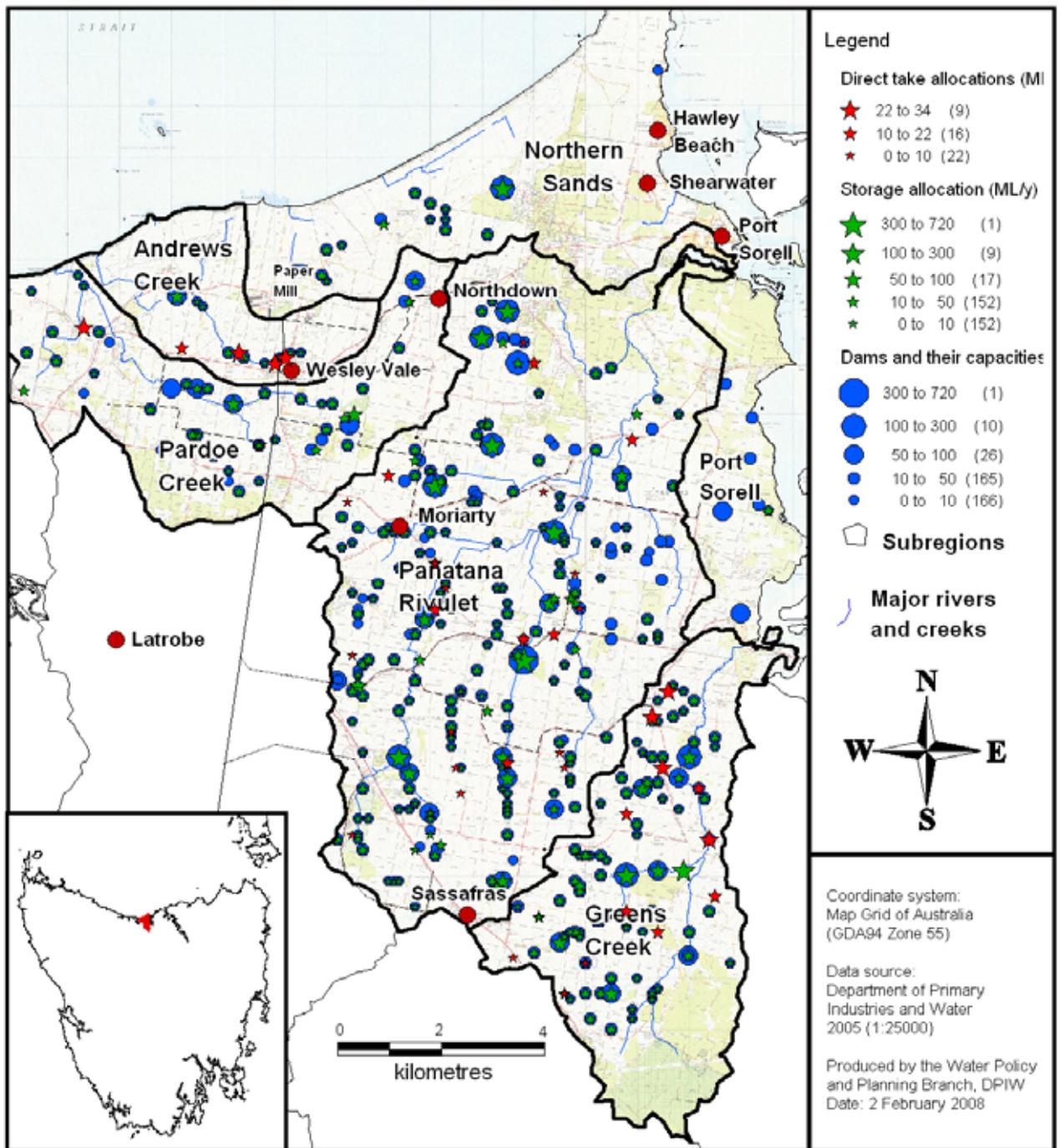


Figure 1 Map showing the Sassafras Wesley Vale management catchments, the location of dams, major creeks, water license allocations and towns within the area.

*The large dam marked as without an allocation (star) in Pardoe Creek has an allocation of 81 ML, one of the dams to the left of the lower part of Panatana Rivulet has an allocation of 30 ML. Both are included in the calculations in Tables 1-3.

2. Water Licenses and Allocations

There is a total volume of 8277.3 ML allocated in the Sassafras Wesley Vale area. Figure 1 shows where water users are located. Table 1 shows the purpose for which allocations are used in each area and the associated water volumes. Tables 2 and 3 show the sureties for direct-take and the storage allocations. Points of interest are:

- most of the water allocated (96%) is consumptive water used for irrigation.
- most of the water allocated (87%) is for the taking water into storage from 1 May to 31 October, and there has been extensive development of on farm storages throughout the area.
- the largest amount of allocated water in the area (51%) is in the Panatana Rivulet catchment.

Table 1 Total allocation (in ML/year) documented in the Water Information Management System (WIMS) for each catchment and sub-area sorted by purpose.

	Panatana Rivulet	Greens Creek	Pardoe Creek	Andrews Creek	Northern Sands	Port Sorell	Total
Irrigation	4651.7	2026	788	266	357.1	22	8110.8
Stock & Dom	49.6	0	110.4	0.5	0	0	160.5
Aesthetic	6	0	0	0	0	0	6
Total volume	4707.3	2026	898.4	266.5	357.1	22	8277.3

Table 2 Direct take allocations (ML) per irrigation season in each catchment and sub-area. The Sassafras Wesley Vale area has Surety 5 direct take allocations only.

	Panatana Rivulet	Greens Creek	Pardoe Creek	Andrews Creek	Northern Sands	Port Sorell	Total
Surety 5 (daily rate)	223.2 (2.07)	164.3 (1.58)	22.5 (0.23)	104.3 (0.92)	0	0	514.3 (4.82)
No. of allocations	28	12*	1	4	0	0	45*

* There are two extra licences on the map because the Greens Creek catchment has two licences that extract water from the Rubicon River.

Table 3 Storage allocations (ML) per storage extraction season in each management catchment, sorted by surety level.

	Panatana Rivulet	Greens Creek	Pardoe Creek	Andrews Creek	Northern Sands	Port Sorell	Total
Surety 1 (licenced)	49.6	0	110.4	0.5	0	0	160.5
Surety 5 (cons)	4196.7	1861.7	801.5	161.7	357.1	22	7400.7
Surety 5 (non cons)	6	0	0	0	0	0	6
Surety 6	150.8	0	45	0	0	0	195.8
Total volume	4403.1	1861.7	956.9	162.2	357.1	22	7763
No. of allocations	180	88	38	10	15	1	331

3. Water Meters

Tasmania, as a part of the National Water Commission agreed to install water meters “*on all commercial direct take extractions in catchments where intensive usage occurs*”.

A further condition requires water users to record water meter readings daily during periods of restriction, and to forward this information to the Department weekly or as requested.

Stock and domestic riparian users who take of water under Part 5 of the Act, are not required to be metered at present. However, an Authorised Officer may, at their discretion, direct individuals to install a water meter to measure water use.

The Plan requires that larger extractors, and new water licensees within the area install a water meter to ensure that the amount of water taken under the licence is measured. Water meter installations and reporting of water meter data must be undertaken and managed in accordance with the requirements of the Department.

In addition the owners of all in-stream dams in the area with a licence allowing the taking of water into the dam may be required to install metering systems (such as v-notch weirs) in accordance with the relevant Departmental policies and standards.

The Department, in conjunction with Hydro Tasmania, is moving to a telemetered system of water meter data collection, with a telemetry unit named the ‘Ajenti’ system being deployed. This system can be linked to existing water meters, and automatically records water usage. Information can be sent via SMS to a centralised database designed specifically for the storage and interpretation of water use data.

It is envisaged that data will be sent on a daily basis over the irrigation season. This system will negate the need for users to read and record their meter readings while enabling them to access the information for their own records on a Departmental web page. There is also a project underway to improve the management of water use information.

The Department is reviewing the installation of meters throughout 2009.

Water Metering in the Sassafras Wesley Vale area

As part of the Sassafras Wesley Vale Plan licensees who take water directly from any watercourse are required to have water meters installed.

The largest water users in the area are to be metered in 2009. As of January 2009 there were 32 water meters installed in the area on 21 licences.

Water rangers or the Regional Water Management Officer collect both pre-season and post-season meter readings, and can request reporting more often when deemed necessary.

Once the Ajenti system, being implemented by Hydro Tasmania, is installed, and an accurate and efficient recording and reporting system is in place, telemetered systems could bring benefits to managers and users through the timely provision of accurate water usage information. This would lead to increased reliability and equitable access to water.

4. Dams in the Sassafras Wesley Vale area

4.1 Dam Permit Applications and Approvals

There are large numbers of dams on most creeks and tributaries in the Sassafras Wesley Vale area. Individual landowners continue to seek water development opportunities by building of farm storages. In the area identified, a total of 369 dams holding a total volume of 8838.4 ML has been approved (Table 4). Most of the dams constructed are for irrigation purposes.

Table 4 Volume of water (ML) and number (in brackets) of dam permit approvals for irrigation, stock and domestic use, fire fighting and other use in the catchment in four year blocks. The column 'Other' in this case refers to aesthetic use.

Financial Yrs	Irrigation	Stock & Domestic	Other	Total
2005–2009	125.2 (3)			125.2 (3)
2001–2005	500.5 (17)			500.5 (17)
1997–2001	904.4 (33)	7.5 (2)		911.9 (35)
1993–1997	1496.5 (32)	6 (1)		1502.5 (33)
1989–1993	421.2 (9)			421.2 (9)
1985–1989	362.3 (7)	94.5(3)		456.8 (10)
Pre 1985	4866.2 (251)	42.1(9)	12 (2)	4920.3 (262)
Total	8676.3 (352)	150.1 (15)	12(2)	8838.4(369)

The reasons for the discrepancy in the total number volume in dams approved and the volume licensed are:

- dams used for stock and domestic use do not need to be licensed;
- some dam owners have water based on riparian rights, or have dams that intercept overland runoff, which do not require a licence;
- some dams are proposed or built, but owners have not yet built them, or they don't yet have licences;

4.2 Dam management

The map in Figure 1 and the information above clearly show there are large numbers of in-stream dams in the Sassafras Wesley Vale area. Where there is such intensive damming of a water resource, management is often difficult.

Dam policy guidelines require that from 1 May to 30 November, 50% of the flow into a dam or the maximum capacity of existing outlet pipes must be released. In the summer months, from 1 December to 30 April, all of the flow into dams must be released except where there is a direct take allocation (Minutes of the Rivers and Water Supply Commission, 1995). In essence, the majority of water required for irrigation in the summer should be collected in the winter only. Where there is no water flowing into the dam from any source, no water is required to be released.

Management of water in creeks where there are many in-stream storages is extremely difficult for the authorised officers. The flows are normally very low in the area and if the 50% passing rule above was followed on streams with several dams on them, there is no water left for the users downstream. Therefore, management in these extremely impacted creeks is largely based on water sharing between the users.

In the summer months (from 1 December to 30 April) the Authorised Officer first ensures that licence conditions in relation to storage operation are adhered to, and that where possible, a

cease to take of between 2 L/s and 5 L/s is adhered to for maintenance of water quality, and domestic and stock use, along the length of the resource. This is achievable if the rules for dam operation are followed, because the flow from springs provides a natural base flow.

The Sassafras Wesley Vale area is only a small part of the Mersey–Forth and Mender Water Management Regions and officers spend a large amount of time in this area ensuring that flow is maintained and licences are being adhered to.

4.3 Temporary water transfers

Current water trading guidelines (DPIWE, 2004) suggest that there are losses due to groundwater infiltration, evaporation and extraction by other water users. Trading in the past has shown that there is some in-stream loss of water to groundwater during dry times, and that the water being traded that passing through several dams can be difficult to measure. To allow for the loss of water, a further 10% of the volume required is to be added to any temporary water transfer.

5. Current Restriction Management

Restriction management in the area is initially based on the monitoring of flows at the recently installed stream gauge at Parkers Ford in the lower reaches of Panatana Rivulet. However, the gauge is only a guide to possible flow trends in the area. Regular flow measurements are also measured in streams throughout the whole area due to the complexity of managing flows from the numerous small tributaries, drainage channels and diversions. Monitoring takes place at permanent to temporarily installed low flow v-notch weirs at sites in each of Eastford Creek, Westford Creek, in the upper part of Panatana Rivulet, and at an upper and a lower catchment site in Greens Creek, Pardoe Creek and Andrews Creek, and at other locations as required.

The main objective of Authorised Officers during times of low flow has been to seek to maintain a flow of between 2 L/s and 5 L/s (depending on the location) throughout the area as a minimum flow for stock and domestic use, fire fighting and the environment. Restrictions have been enforced when flows drop to levels that threaten stock and domestic takes in the lower catchment.

Over the last few years, there have been several months of water restriction from November to April, when water can no longer be taken directly from stream flow or taken into storage for irrigation purposes (Table 5). The lack of water available for irrigation over the last three summers suggests that water during the direct-take season is not reliable and has highlighted the need for an alternative source of water for irrigation.

Table 5 Records of water restrictions in the Sassafras Wesley Vale area from 2002 to 2009.

Irrigation season	Dates
2008/2009	14 January to 11 February
2007/2008	5 January to 30 April
2006/2007	17 November to 30 April
2005/2006	None
2004/2005	26 February to 11 April
2003/2004	None
2002/2003	None

6. Conclusion

Water Management faces a number of difficulties in the area largely due to the very high demand for water in the catchments to satisfy the demands of the high yield cropping. The main demand for water is normally from November to March, whereas the water resources largely provide the water required during the winter months and very little in the summer. As a result, there are a large number of in-stream storages in each of the four main catchments, which are difficult to manage flow throughout.

If there is not sufficient rainfall in winter to fill the storages, irrigators may significantly increase groundwater extraction rates, which is the main source of water for many stock and domestic users. Groundwater also provides the base flow for streams through springs in the area.

In dry years if owners of in-stream storages do not manage them according to the sharing rules, other users in the area, including other irrigators, stock and domestic users and the environment miss out resulting in the deterioration of water quality and greater a risk to farmers incomes.

The Department has recognised the above issues and has taken steps to improve the management of the area, particularly in relation to water meters and its support for the Sassafras Wesley Vale Irrigation Scheme.

7. References

DPIWE 2004. Guiding Principles for Water Trading in Tasmania: Policy 2003/2.

Minutes of the Rivers and Water Supply Commission 1995. Water Allocation Policy, p96.