



# SEASON REVIEW

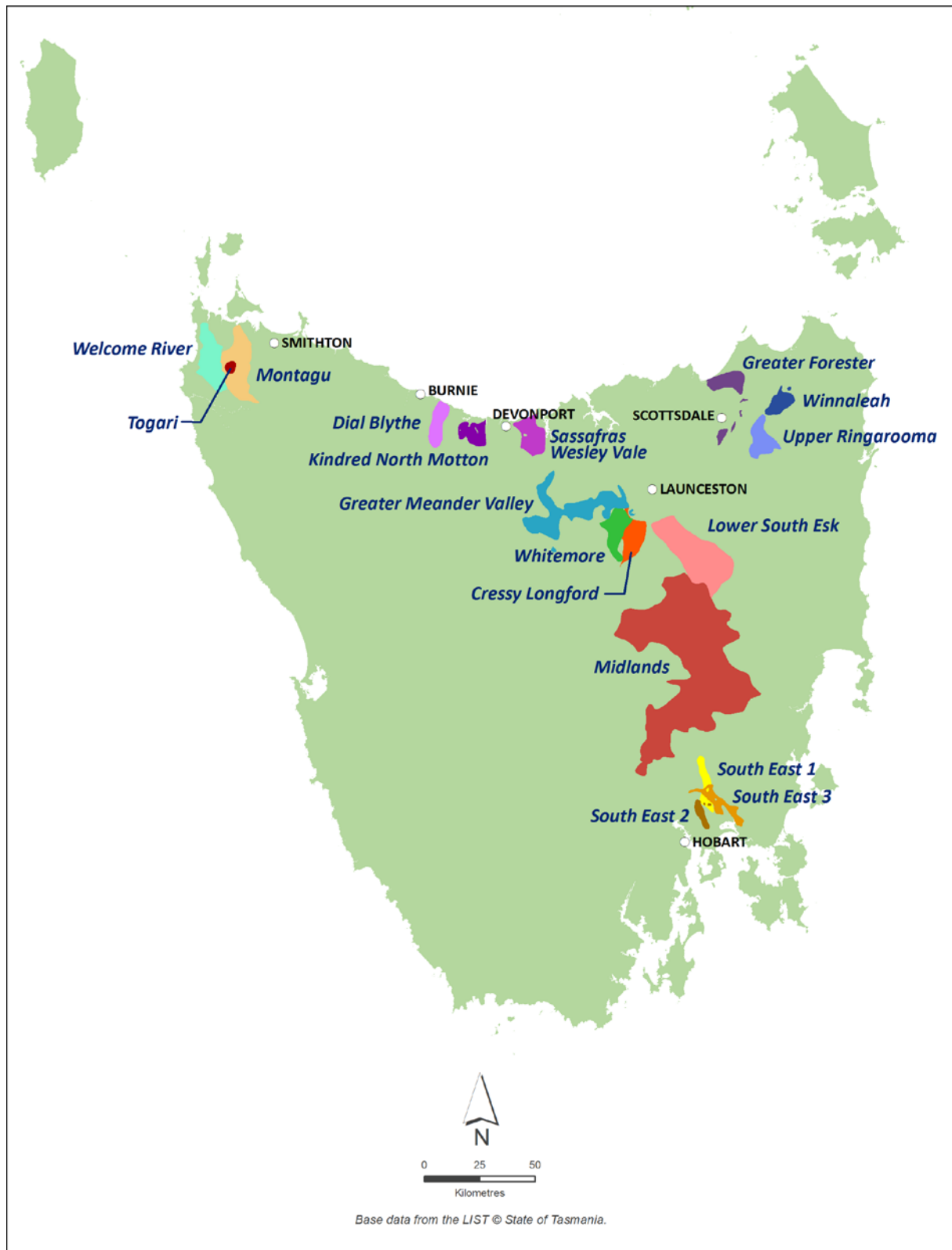
Irrigation Season  
2016/17

A snapshot performance summary of each scheme and the highlights associated with operation during the 2016/17 irrigation season.

## Table of Contents

Irrigation, water supply & river improvement schemes .....	3
What this document is about.....	4
All TI Schemes .....	5
Scheme: South East Stages 1 & 2 (Combined).....	9
Scheme: Greater Meander (River and Pipelines) .....	14
Scheme: Sassafras Wesley Vale.....	22
Scheme: Great Forester .....	26
Scheme: Whitemore .....	29
Scheme: Midlands Water Scheme.....	32
Scheme: Lower South Esk .....	36
Scheme: Kindred North Motton.....	39
Scheme: Dial Blythe.....	42
Scheme: Upper Ringarooma .....	45
Scheme: South East Stage 3 .....	48
Self-Managed Schemes.....	52
Water Supply Schemes .....	54
River Improvement Schemes .....	56
Definitions .....	57

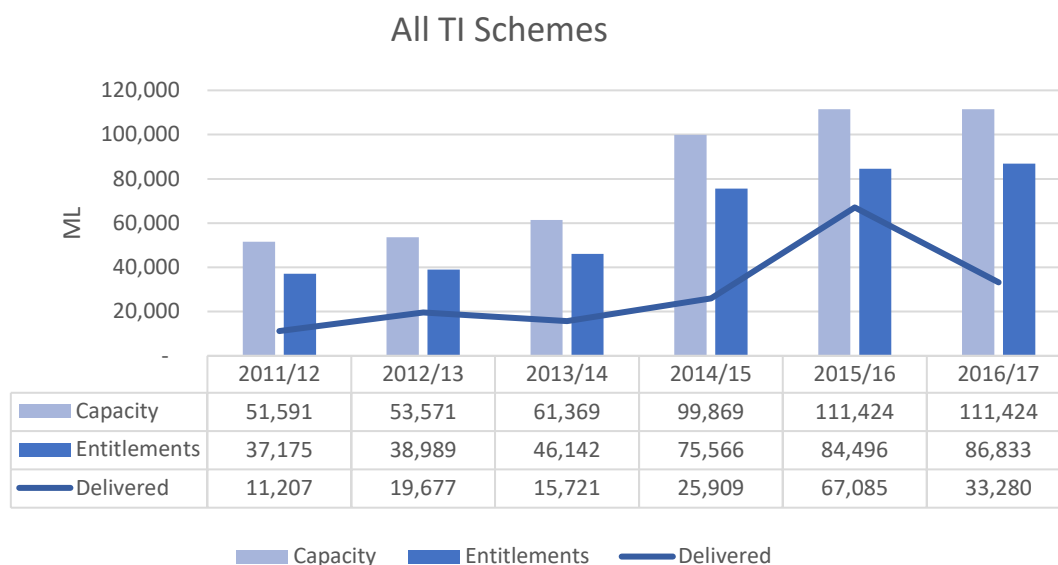
## Irrigation, water supply & river improvement schemes



## What this document is about

This document is a scheme by scheme summary of the operations of Tasmanian Irrigation (TI) managed irrigation schemes in the past financial year. It is an opportunity to highlight how TI is providing our planet's most valuable resource - water - to irrigators in an efficient and affordable way, and enriching the agricultural production in Tasmania.

## All TI Schemes



## Water Delivery:

After a dry 2015/16 season, unseasonably high winter rainfall replenished the storages ready for the 2016/17 irrigation season. This however resulted in a slower start - due to residual soil moisture or other water being available to our irrigators. Demand increased in November, decreased in early summer, but continued into late autumn; due to the lack of follow up rainfall in many irrigation districts.

TI delivered 33,000ML of water which was just under 40% of entitlements that have been issued. Whilst this was half the amount of the previous exceptionally dry year; on average, the ML delivered to irrigators has been increasing year on year. There were over 365 customers accessing TI water, out of a total 831.

The change in land use as farmers develop their irrigation infrastructure and diversify their crops, is driving the demand for water at different times within the season and more notably outside the irrigation season. This means a re-assessment of TI's water operations activities to support this in a sustainable cost-effective manner. Some work has commenced in this area notably in the Greater Meander district, but several other districts are starting to face the same requirement. In operating these irrigation schemes, TI can provide water security to farmers giving them the confidence to invest in higher yielding crops such as berries, cherries, poppies along with dairy farming.

New schemes like the Southern Highlands and Swan Valley (which has limited options for alternate water in all or part of the district) will benefit greatly from the lessons learnt over the range of recently-experienced seasons and water use requirements.

As and where required, older schemes are being upgraded in an ongoing process to meet modern irrigation standards and place them in a good position to meet the expected future demands.

## Financial:

Overall, the irrigation schemes are continuing to operate within the prescribed budgets. However, it should be noted that there continues to be a few schemes that are struggling to recover the associated costs and are currently in a cash negative position.

Individual scheme performance is discussed in each section of this report, but overall, we will focus on gaining a much better understanding of the current cash positions of each scheme.

We continue to work on getting a better understanding of the specific costs associated with the day to day running of each scheme and to consequently focus on the areas that can provide the most benefit to the effective management of costs going forward

## Infrastructure:

It's no surprise that the flood events in June 2016 caused some damage to some TI infrastructure – and most notably, to several pump stations along river banks and to an area downstream of the Meander Dam. The majority of this damage has already been repaired and where appropriate, additional levels of protection have been installed or improved. Remaining non-essential repairs have been scheduled to be carried out when conditions are best suited to the works required.

Over the past season, the focus has been on pump performance, after several pumps across a number of schemes failed. Operational staff have worked in collaboration with irrigators to ensure that demands for water were achieved (While some schemes had restricted capacity due to these outages delivery of all required volumes was able to be achieved). At the end of June 2017, several pumps remain out of service pending final repairs and reinstallation.

Investigations into the cause of some of the failures has identified some operational constraints that may have contributed to the cause of the failure. TI has taken the opportunity where appropriate to reconfigure the pumping arrangements to better cater for the demand profile of water deliveries.

During the season, the SCADA upgrade project has been in full swing. The aim is to get all the TI control systems onto a single platform, as well as enabling TI to get a better reporting and control ability on the parameters of pump and system controls. These works have already resulted in a number of efficiency improvements with the management of releases at Craigbourne Dam and pumping from the Coal River at Richmond.

A significant amount of work has also been undertaken on the management of the overall TI asset base, with a scheme by scheme review of assets undertaken and included in a new asset management system. We expect this process will lead to better planning and preventative maintenance requirements, as well as gaining a better understanding of the requirements for each scheme for funding asset renewals going forward.

## Environment:

All environmental monitoring programs were conducted in accordance with permits and approvals. We're happy to report that the results indicated no significant negative impact on environmental values from the operation of the schemes, which include water quality and aquatic habitats.

All water taken into storage was in accordance with water licence conditions.

## Water Trading:

Water trading activity was substantially down on the past year because of the reduced water supply demand (compared to the previous season) and the 2016 floods.

This is how many water trades were carried out during the last year:

- 44 Permanent transfers totalling 3,300ML
- 60 Short term transfers totalling 3,733ML and
- 15 Limited term transfers for 480ML

## Governance:

All irrigator representative committees held meetings prior to the start of the 2016/17 season. The aim of the meetings was to discuss pricing and scheme operational issues.

When it was required or requested, other meetings were held during the season in several schemes to discuss relevant operational issues.

Scheme By-laws are in the process of being updated, with a review of the SWIS and South-East By-laws being undertaken first. Once finalised, new by-laws will be rolled out across all TI schemes as required.

## Farm Water Access Plans:

No breaches were identified during the season of irrigators applying TI water to areas not covered by a Farm Water Access Plan (Farm WAP). All irrigators audited during the Annual Farm WAP Audit were found to have a good understanding of the requirements of their Farm WAP and complied with their Farm WAPs.

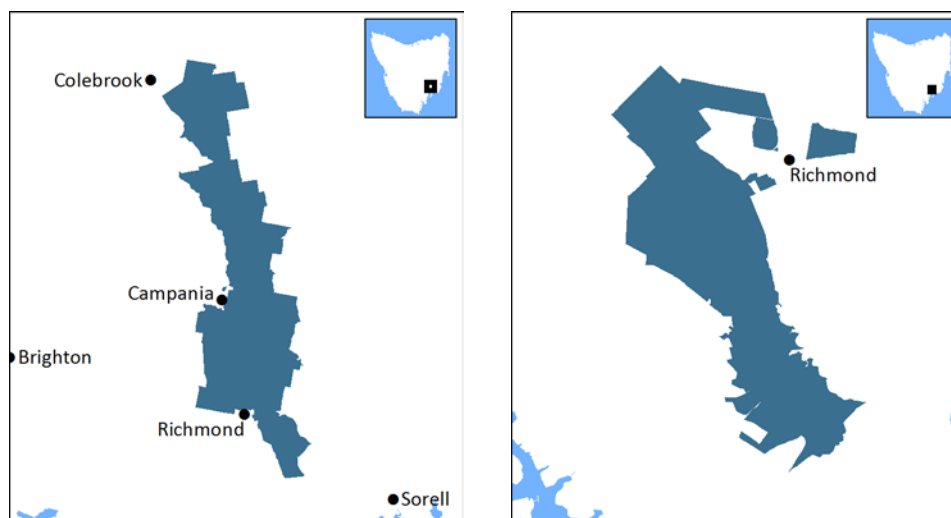


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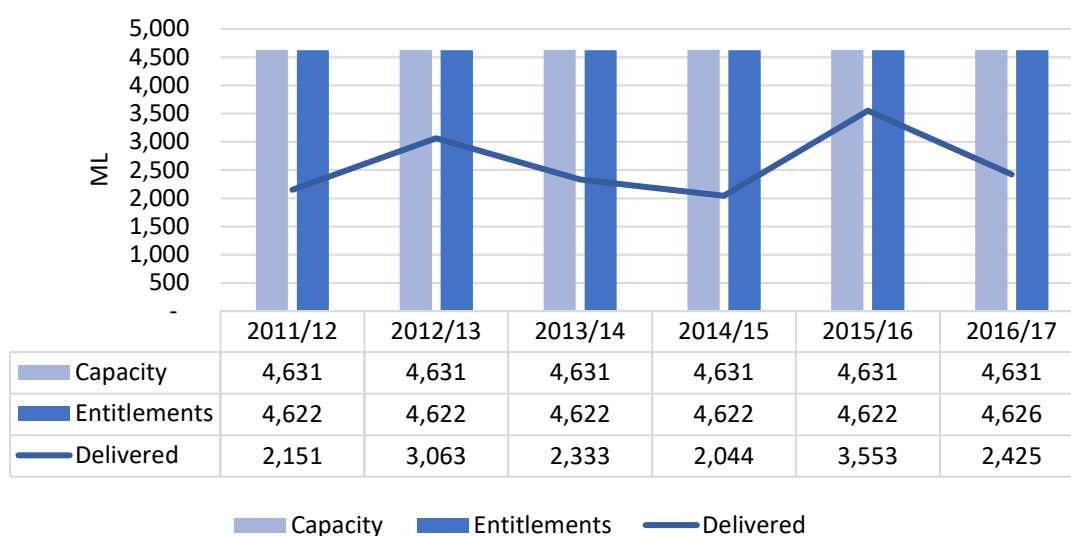
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South East Stages 1 & 2  
(Combined)

## Scheme: South East Stages 1 & 2 (Combined)



Combined SEIS 1 & 2



### Water Delivery:

A wet start to 2016/17 saw a reduction in early demand for water across the schemes. This resulted in a lower delivery volume from 2015/16 to 2,425 ML for the financial year.

For Stage 1, late rainfall resulting in higher flows in the Coal River and reduced demand up to the middle of November, saw significant reductions in releases from Craigbourn Dam during this period. This was however balanced by the extended dry conditions in late summer and autumn, which saw demands continuing through much of the second half of the year.

Careful monitoring and management of Daisy Bank Dam combined with system upgrades of the Richmond Pump Station control system allowed water to be captured whenever available. This offset short period of

reduced supply from TasWater's Bryn Estyn treatment plant, stemming from infrastructure issues. There was no impact on deliveries to SEIS Stage 2 at any time throughout the season due to the availability of water.

## Financial:

While it did return a small profit during 2016-17, there are concerns about the cash position of the scheme, because of the impacts of required maintenance of aging infrastructure. This carried forward some shortfalls regarding the recovery of debts, plus a range of other issues which are yet to be determined.

We'll also need to allow for a broader review of the South-East, and looking at options for further development and efficiencies to improve the cost base for all schemes in the region.

## Infrastructure:

Significant repairs and upgrades occurred across the scheme with key works including upgrades to SCADA systems at Craighourne Dam and the Richmond Pump Station, remedial works at Daisy Banks Dam, maintenance activates on outlet works at Craighourne Dam and pump refurbishments at Richmond.

In particular, the SCADA works will improve the efficiency of scheme operations for both Stage 1 and 2, which will contribute to improved reliability of water supply for the long term.

In addition to these works, there was also ongoing maintenance and repairs to infrastructure including meter upgrades and repairs associated with a leak on the main supply line from Daisy Banks Dam in Stage 2.

## Environment:

There were no significant Blue-Green Algae blooms at Craighourne Dam this year. Improved flows during 2016 also resulted in improved salinity conditions in the first half of the year, however salinity did continue to require active management.

## Water Trading:

Trading within South-East 1 and 2 (while not as critical as prior years) was reasonably consistent. In particular, short term trades continued to be critical for operations of a number of larger irrigators to ensure water availability for their operations.

Details of trading for 2016-17 can be found below.

Type	District	Number of	Total volume (ML)	Average volume
Limited term transfer	Coal River (Stage 1)	1	4	4
	South East (Stage 2)	1	23	23
	<b>Total</b>	<b>2</b>	<b>27</b>	<b>14</b>
Permanent transfer	Coal River (Stage 1)	5	391	78
	South East (Stage 2)	10	116	12
	<b>Total</b>	<b>15</b>	<b>507</b>	<b>34</b>
Short term transfer	Coal River (Stage 1)	5	91	18
	South East (Stage 2)	15	314	21
	<b>Total</b>	<b>20</b>	<b>405</b>	<b>20</b>
<b>Total</b>		<b>37</b>	<b>939</b>	<b>25</b>

## Governance:

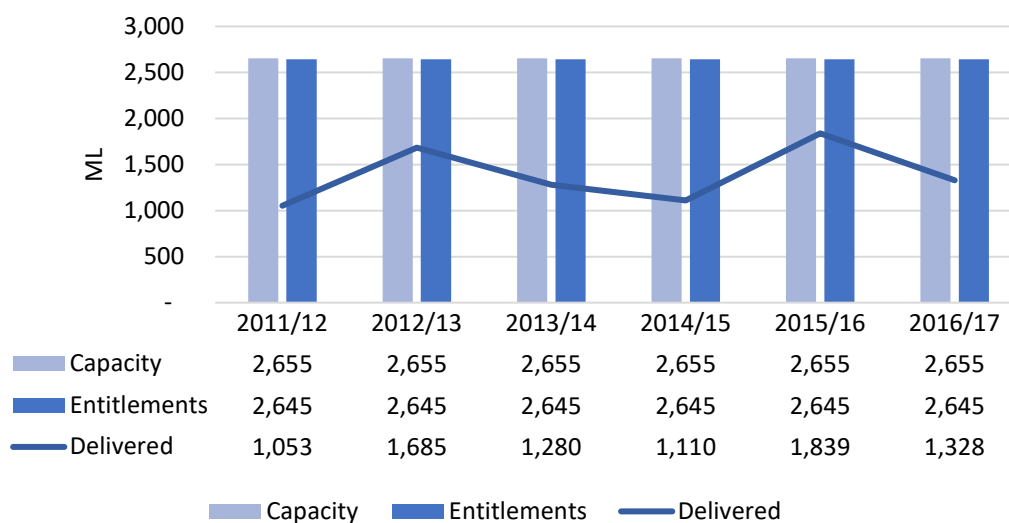
The Irrigator Representative Committee was expanded to five members at the start of the irrigation season - with the new addition of Marcus Griffiths.

The purchase of land and associated infrastructure for Daisy Banks Dam was completed.

The SEIS Stage 1 and 2 By-laws are being reviewed by the department of Premier and Cabinet and new laws will be provided as soon as they are announced.

## Scheme: SEIS 1 (Coal Valley)

### SEIS 1

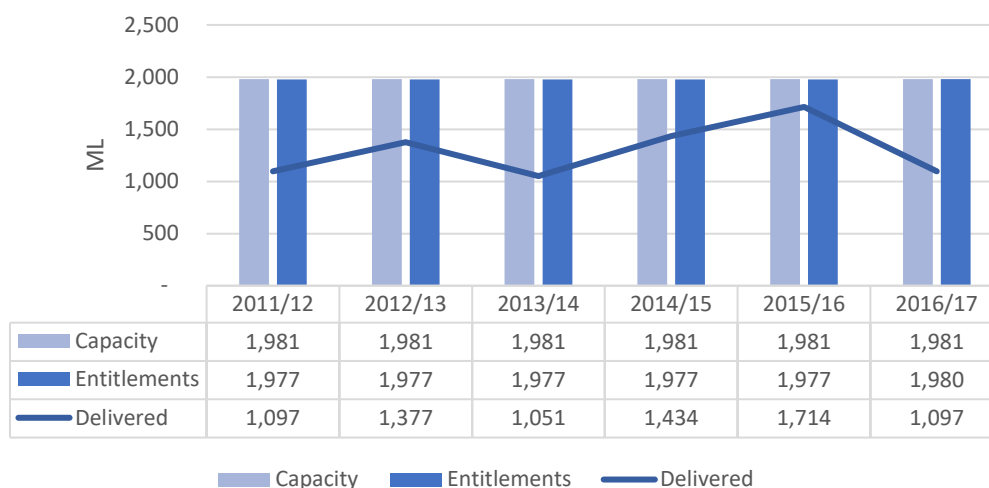


### Comments:

Deliveries in the Coal Valley continued to reflect seasonal conditions, with no significant issues associated with delivery. The reduced demand was because of the spilling of Craigbourne Dam throughout the first third of the season, which allowed increased access to surplus water.

## Scheme: SEIS 2 (Daisy Bank Dam)

### SEIS 2



### Comments:

As discussed above, the only significant issues with regard to deliveries in Stage 2 was the impact of TasWater infrastructure issues. This was managed through the ability to access excess water from the Coal River and the Richmond Pump Station. The works to improve the automation of the pump station and increase the operational capacity of Daisy Banks Dam will significantly contribute to improving the scheme's ability to cope with interruptions to supply from TasWater in the future.

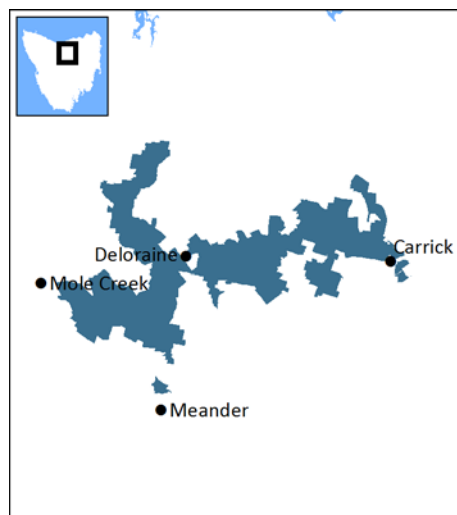


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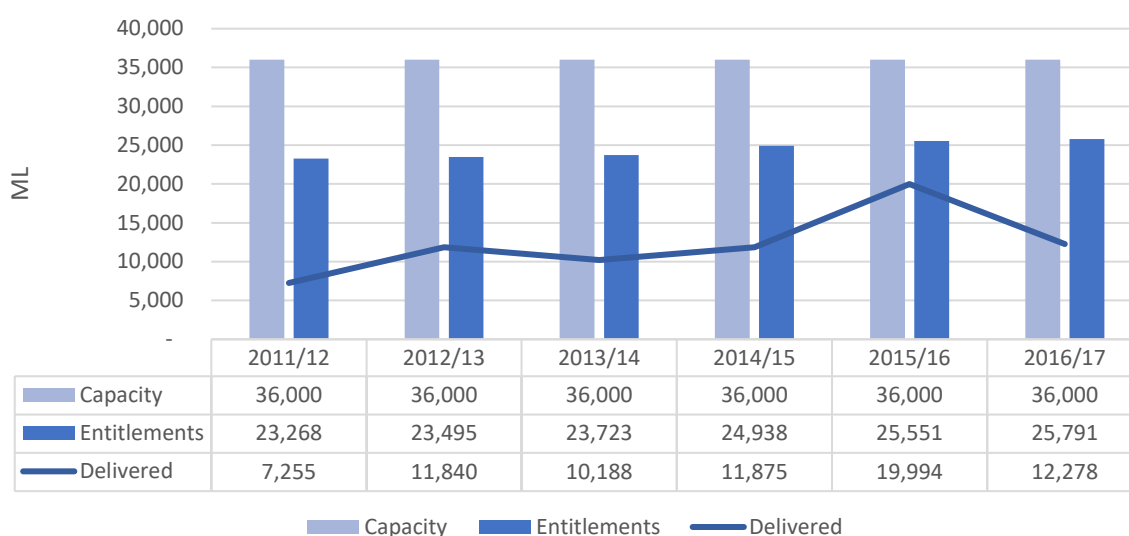
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Greater Meander  
(River and Pipelines)

## Scheme: Greater Meander (River and Pipelines)



Greater Meander



### Water Delivery:

It was a long season for Greater Meander, with demand for water as early as November 2016 and continuing late into April 2017.

The demand profile for water reflects the overall demand for TI with a spike in the 2015/16 season followed by a reduced demand in the past season this is reflected by the fact that only 87 of the 178 current right holders accessed some of their entitlement during the past year.

TI continues to look at more efficient and effective means of collecting the required data for meter reads and other activities associated with water delivery. A new process using an app called collector was successfully trialled at the end of the past season and will be further developed before the start of the 2017/18 season.

The levels in the Meander dam continue to be monitored with the production levels of the Mini Hydro adjusted as required to ensure that the dam will be full for the start of the coming season.

## Financial:

This scheme recorded a slight profit, with a strong cash balance position in the past financial year.

Costs associated with flood damage of approximately \$70k are yet to be recovered from insurance.

Costs associated with the geomorphology assessment required after the flood event are yet to reach the accounts – and unfortunately these will effectively counter the savings from insurance, at around \$65k when the account is presented.

The strong cash position provides a great opportunity to reconsider the pricing structure over the coming months. This is to be in conjunction with a revised method of allocating overheads that will impact the future costs of the scheme.

## Infrastructure:

The June 2016 floods had a considerable impact on this scheme's infrastructure, with damage occurring at several pump stations and downstream of the dam itself.

Hagley and Caveside pump stations were inundated with water and there was damage to electrical connections. Quamby and Rubicon (while also underwater) didn't incur significant damage during the same period.

At the peak of flooding, the Meander Dam recorded its highest spill event on record, with nearly 2m of water over the spillway. The high nature of these flows has caused significant damage to the downstream geology of the river. Works had to be undertaken to repair the damage and to prevent further damage, should another spill event occur.

Pumps have been a focus for us in the past year, with a pump at Rubicon removed so that a bearing replacement could be done. At Quamby, one of the pumps has been removed for a condition assessment (this is still pending). The final condition of these pumps will be used to determine the pipeline delivery capacities.

The Caveside pipeline performance investigations have indicated a significant drop in pressure in the early sections of the pipeline, with initial investigations suggesting that there may be some obstruction in the pipe. However, this is yet to be confirmed and further work will be carried out pre-season to confirm the cause of the loss of pressure.

A pump failure at Hagley occurred early in the season, with replacement options being considered in light of the cause of failure (operating at slow speeds for low volumes not compatible with pump design).

Unfortunately, theft of equipment continues to be a concern in the district - items relating to outlet controls have been stolen at Coilers Creek, Bengo Creek and the Quamby outlet controls. TI continues to look at ways we can better protect this infrastructure.

## Environment:

Geomorphology assessment of Meander River was undertaken because of the flood events triggering a requirement under the license conditions.

## Water Trading:

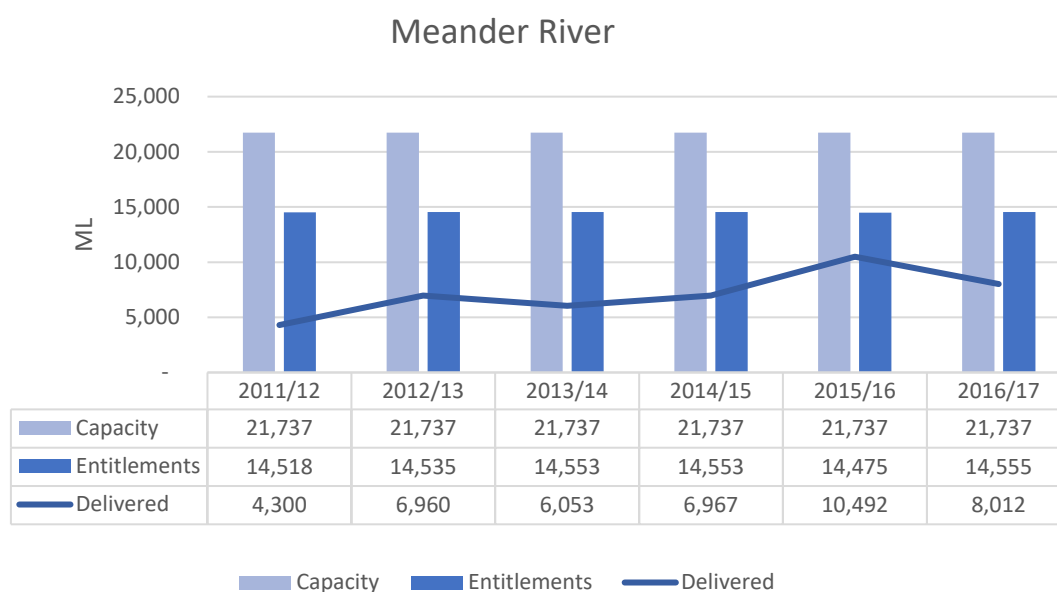
The table below outlines the trading that occurred during the season, with a relatively small number of trades during the season.

Type	District	Number of trades	Total volume (ML)	Average volume (ML)
Limited term transfer	Greater Meander	1	11	11
	Hagley	2	22	11
	Meander Valley	2	40	20
	<b>Total</b>	<b>5</b>	<b>73</b>	<b>15</b>
Permanent transfer	Hagley	1	50	50
	Meander Valley	7	256	37
	Quamby Osmaston	1	20	20
	<b>Total</b>	<b>9</b>	<b>326</b>	<b>36</b>
Short term transfer	Caveside Dairy Plains	1	150	150
	Hagley	1	150	150
	Meander Valley	4	416	104
	Rubicon	2	127	64
	<b>Total</b>	<b>8</b>	<b>843</b>	<b>105</b>
<b>Total</b>		<b>22</b>	<b>1,242</b>	<b>56</b>

## Governance:

Irrigator Representative Committee (IRC) meeting pre-season, mainly to discuss pricing. No other meetings held during the year.

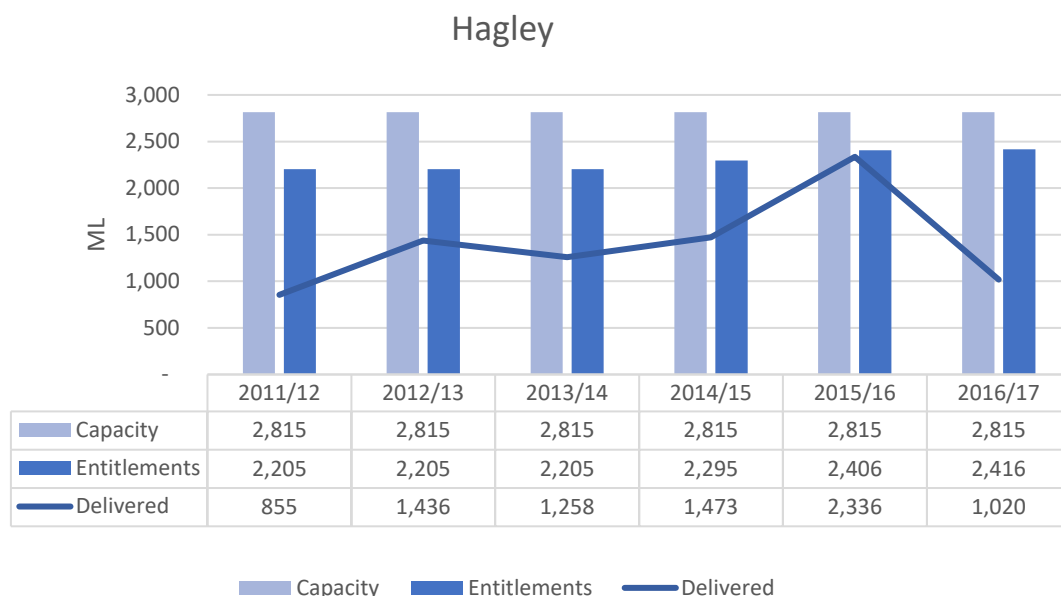
## Zone: Meander River



## Comments:

Focus on the operation of the main channels during the past season to better understand the degree of loss that occurs in the channels, as well as what other options we have to better manage the delivery of water in this area. 46 of the 96 irrigators on the river accessed their water during the past year.

## Zone: Hagley Pipeline



## Comments:

A failure of one of the main pumps at Hagley occurred early in the season. This failure was significant and not able to be repaired in a short time frame.

Short term arrangements to manage deliveries were put in place, along with additional monitoring of the remaining pump and close communications with the scheme operator. This is to help manage water demand within the limits of the remaining pump.

Thankfully, a relatively low demand season has enabled deliveries to be made as required with 16 of the 26 irrigators accessing their supply.

It was identified that the cause of the failure was that the pump and motor configuration wasn't suitable for operating at low speeds (periods of low demand). By operating at low demand levels, the motor has not been operating at a high enough speed to ensure sufficient water is passing the motor and cooling it off, and therefore it has overheated and burnt out.

As a result, rather than replace with a 'like for like' that will incur the same problems, an overall review of the pumps has been undertaken and a revised arrangement will be put in place.

This includes modifications to the existing pumps, to better match the pump and motor combination. It also includes the inclusion of a smaller pump to cater for the periods of low demand so that they can be adequately supplied going forward.

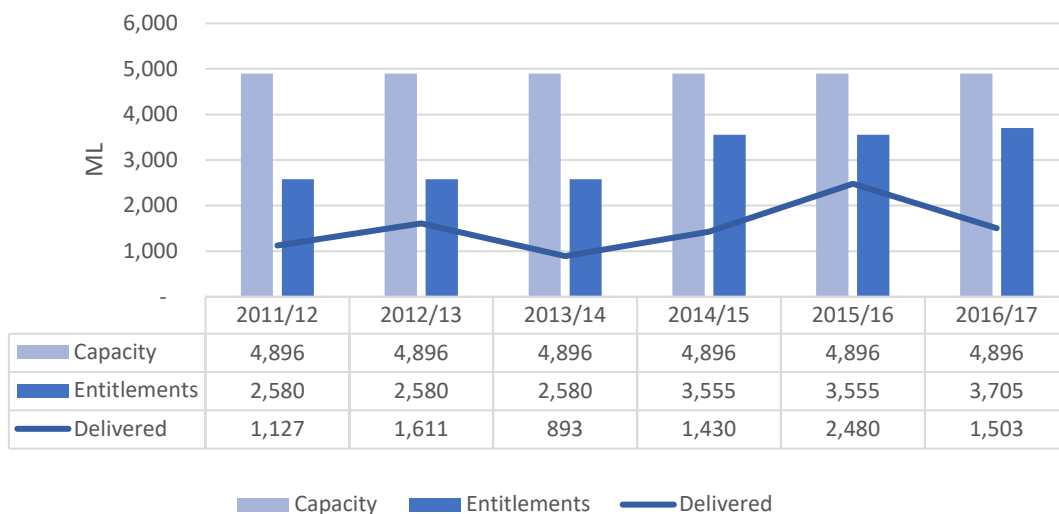
The repairs to the existing pumps are to be funded from the ARL fund and the additional small pump is being funded by external funds rather than from the scheme.

At the same time as the above modifications are being undertaken, the opportunity to upgrade the controls and include into the TI SCADA system is being progressed.

It is expected that the above works will all be completed well in advance of the coming season.

## Zone: Rubicon Pipeline

### Rubicon



## Comments:

The overall capacity of the Rubicon pipeline is still being investigated. Tests on the pumps have indicated that the pumps have been performing well off their expected performance curves. One pump has been removed for an overhaul and had its bearings replaced, and once it's reinstalled it will be retested to see if problems on performance have improved.

Significant works were undertaken on the Rubicon intake structure with some 8-9 cubic metres of material having to be removed using a combination of divers and vacuum truck operations. This is a significant amount of material and options to reconfigure the intake screens are being considered to reduce the build-up of this material once again

The demand for out of season water, due to changing and use requirements, has led to the consideration of installing a new smaller pump that will cater for low flows. The main proponents of the demand request will contribute significantly to the capital cost for this project.

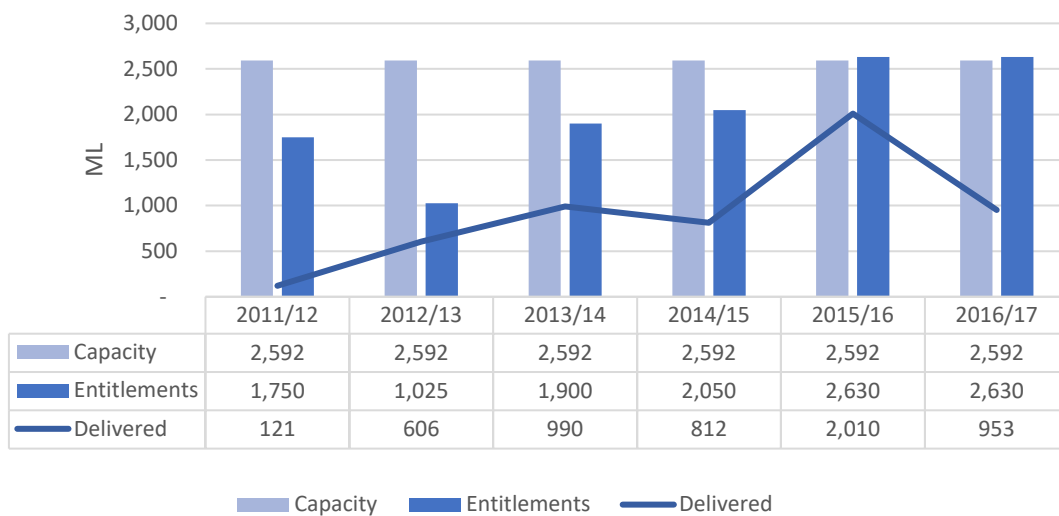
There will be some benefits to the overall scheme operation with more efficient pumping at shoulder periods of low demand.

It is expected that the pumps will be back in place and new pumps installed and operational by mid-September.

10 of the 17 irrigators on the Rubicon pipeline accessed entitlements during the past year.

## Zone: Caveside - Dairy Plains Pipeline

### Caveside- Dairy Plains



### Comments:

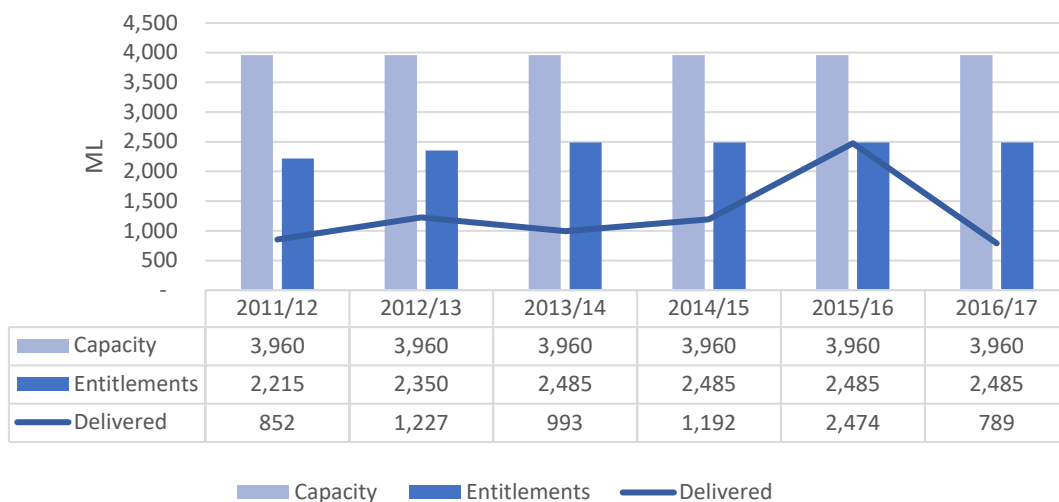
After the flood in 2016, works were undertaken on the intake structure to remove build-up of debris that may have been impacting performance of the pump station.

Further work in this area identified a significant head loss occurring in the first section of the pipeline. Initial investigations have suggested that there may be a blockage of some sort on the pipe, and further investigation is underway to confirm this.

8 of the 15 irrigators accessed entitlements on the Caveside-Dairy Plains pipeline during the year.

## Zone: Quamby Pipeline

### Quamby



### Comments:

Quamby Pumps continue to be a concern, as their performance remains significantly off the curve. One pump remains out of service and is being assessed for wear to see if this could be a contributing factor.

The pump will be fully serviced before being reinstalled and re-tested to assess performance.

The installation of a boom in the river continues to be effective in reducing problems associated with wattle seeds.

As indicated above, the overall use was significantly down in Quamby with only 7 of the 24 irrigators accessing entitlements during the past season.

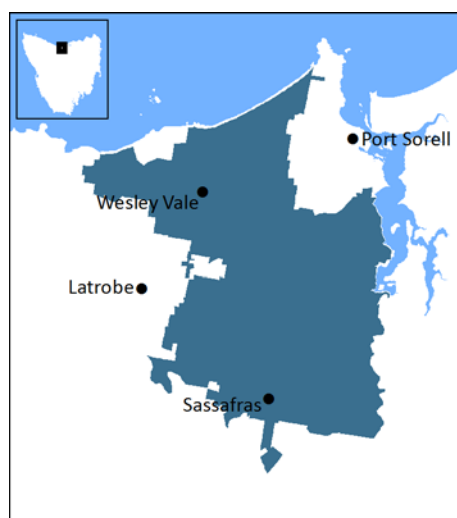


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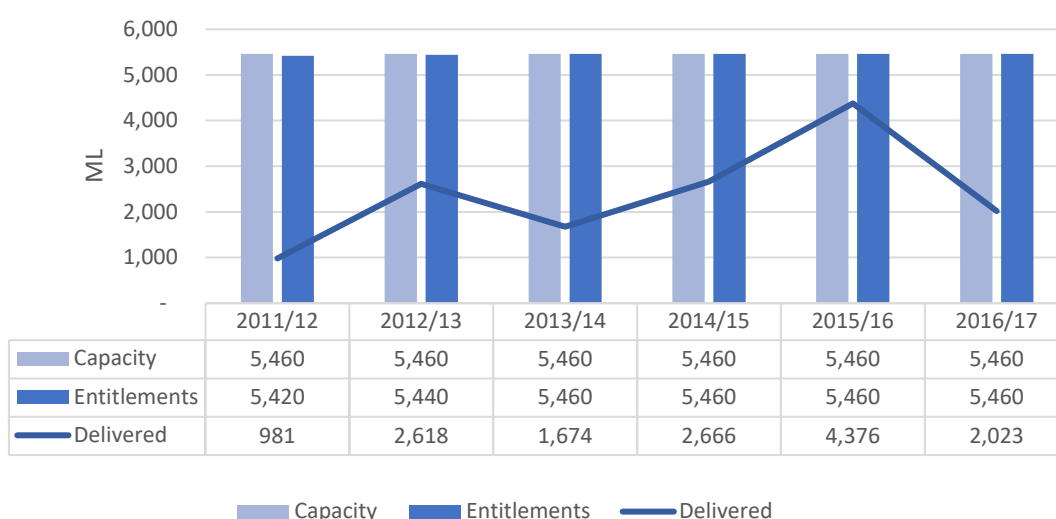
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Sassafras Wesley Vale

## Scheme: Sassafras Wesley Vale



Sassafrass Wesely Vale



### Water Delivery:

A significant issue was identified at the start of the season, with the main pump controls on the Sassafras, Harford and Northdown pump station, where they were only compatible with the 2G network. This network was planned to be decommissioned in December 2016 which would have the effect of removing any control over the pump stations.

This has brought forward a conversion to the TI SCADA system that will allow a better overall control and reporting function for the management of these pump stations.

This was one of the lowest volumes of water delivered last year - only 49 of the 111 irrigation right holders accessed their water.

## Financial:

A minor profit (\$10k) for the 2016/17 season is a good result given some of the past performances of this scheme.

Repairs to the pipelines continue to be an ongoing cost to the operation of the scheme.

The decommissioning of the 2G network has brought forward the need to upgrade communication with the three boost pump stations which is being covered from ARL funding and from overall TI SCADA upgrades.

The scheme continues to be in a poor cash position with shortfalls around \$200k now. Work will be undertaken, pending a review of allocations to determine how much of a recovery is needed for the shortfall.

## Infrastructure:

The main, necessary focus has been the upgrade of controls at the smaller pump stations and the inclusion of Great Bend into TI's SCADA system.

Works on more options to help better manage arrangements relating to the High Voltage (HV) tariff have not significantly progressed, but are an action item going forward.

## Environment:

The required environmental programs were implemented during the irrigation season, including water quality and aquatic habitat monitoring – there were no impacts identified as a result of the scheme's operation.

## Water Trading:

Trading in SWIS continues to be limited by the capacity of pipelines where the demand is mostly located. Trades that have occurred are shown in the table below:

Type	District	Number of trades	Total volume (ML)	Average volume (ML)
Limited term transfer	Sassafras Wesley Vale	4	50	13
	<b>Total</b>	<b>4</b>	<b>50</b>	<b>13</b>
Permanent transfer	Sassafras Wesley Vale	8	440	55
	<b>Total</b>	<b>8</b>	<b>440</b>	<b>55</b>
Short term transfer	Sassafras Wesley Vale	8	271	34
	<b>Total</b>	<b>8</b>	<b>271</b>	<b>34</b>
<b>Total</b>		<b>20</b>	<b>761</b>	<b>38</b>

There's ongoing work being done in relation to the existing capacity of the scheme and the ability to deliver water to the areas that are showing the need for additional water. Many of the issues associated with additional supply are being considered as part of the Tasmanian Future Irrigation Project.

## Governance:

The SWIS by-laws are being reviewed by the department of Premier and Cabinet and new laws will be provided as soon as they are announced.

By-laws are required to ensure that the delivery of out of season water is correctly authorized and accounted for.

A meeting was held with the IRC to discuss pricing in September 2016 and follow up meetings were held with a subset of the IRC to discuss options around winter water opportunities.

### **Farm Water Access Plans:**

The Annual Farm WAP Audit process has been completed for irrigators applying TI water in the 2016/17 irrigation season. Farm WAPs are in place for all areas where TI water is applied and all irrigators audited were compliant with their Farm WAPs.



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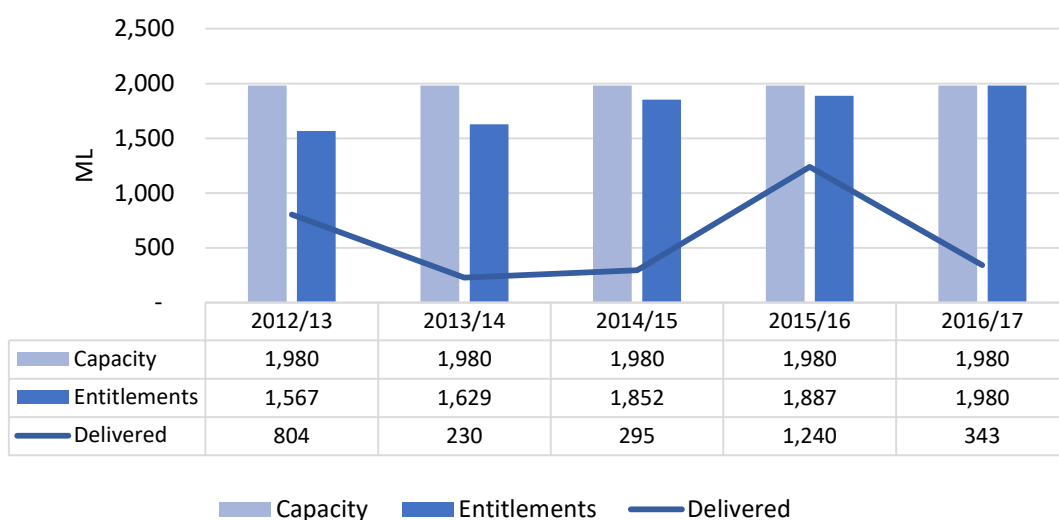
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Great Forester

## Scheme: Great Forester



Great Forester



### Water Delivery:

There's been minimal demand for water this season, because of extended periods of sustained flow in the Great Forester River. In fact, only 2 of the 12 irrigators in this scheme accessed water in the past year. Day to day activities on the scheme mostly relate to managing the vegetation on the downstream dam face.

### Financial:

At the end of the year, the financial position of the Great Forester Scheme is now in a positive position. This is because of the finalisation funding from external sources for previous works undertaken.

## Infrastructure:

The dam continues to behave well, especially now that recent work has been done. A comprehensive inspection was carried out on the dam this year which has highlighted the stability of the most recent works and the overall generally good condition of the dam.

However, vegetation management on the dam wall and secondary spillway remain the main areas requiring ongoing management.

Works on the outlet capacity have been put on hold pending the progression of the Scottsdale scheme and what may be needed as part of this scheme. The current infrastructure is adequate to meet existing irrigation needs.

## Environment:

All water quality sampling was undertaken as required, with no issues identified during the season. As always, all the water that taken into storage was done in compliance with licence conditions.

## Water Trading:

The final sale of water had been completed over the past 12 months and there is no additional water to be sold in the scheme.

There were no water trades during the past season.

## Governance:

One meeting of the Irrigator group was held for the pricing announcements in September 2016.

## Farm Water Access Plans:

Twelve Farm WAPs were in place for the Great Forester Irrigation District. All irrigators that received TI water within the Great Forester Irrigation District had a Farm WAP in place before the water was applied. In accordance with the irrigation district approval conditions, Tasmanian Irrigation completed one Farm WAP audit this season which was in compliance with their Farm WAP.

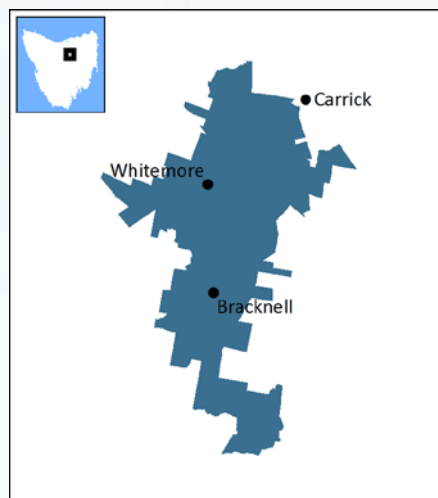


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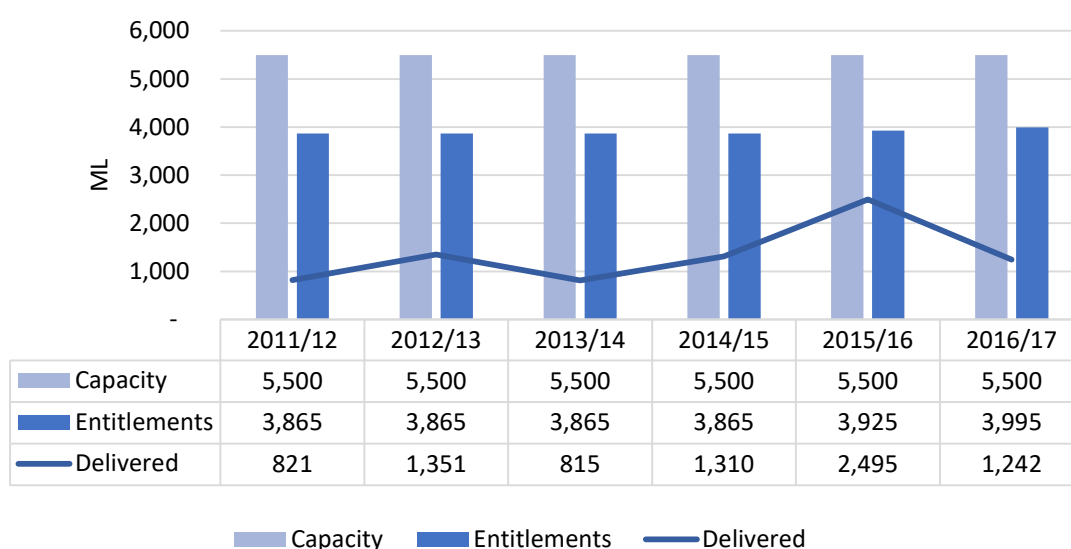
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Whitemore

## Scheme: Whitemore



Whitemore



### Water Delivery:

Demand was not significant for the past season. This was reflected in the numbers, where only 14 of 51 irrigation right holders accessed their water during the past season.

Discussion is occurring in the district about the development of new horticulture operations, as well as the availability of General Availability Water (which is out of season water) at a more consistent rate.

### Financial:

This scheme had a successful season, with a \$70k profit reported and a strong cash balance established.

The seasonal profit is partly due to rebates on costs incurred in previous years, that have been recouped from the correct sources of funding.

Variable profit is partly a result of low demand – this means that the entire scheme can, at times, be supplied by Stoneycroft pump station - without the additional boost pumping from Liffey pump station. This is an opportunistic saving that is only available at periods of low demand and is not included in forecast operational costs.

## Infrastructure:

One of the main pumps at Stoneycroft failed significantly during the past season and repairs are slowly progressing because of further problems occurring during reinstall, but all is expected to be operational for the 2017/18 season.

A significant SCADA upgrade to the controls is also nearly complete for the Whitemore scheme, which will greatly improve its flexibility and daily operations.

## Environment:

All water quality sampling was undertaken as required, with no issues identified during the season.

## Water Trading:

Given the past season's low demand, the amount of trading was minimal. The table below highlights the extent of trading for the past season:

Type	District	Number of trades	Total volume (ML)	Average volume (ML)
Limited term transfer	Whitemore	2	220	110
	<b>Total</b>	<b>2</b>	<b>220</b>	<b>110</b>
Permanent transfer	Whitemore	2	150	75
	<b>Total</b>	<b>2</b>	<b>150</b>	<b>75</b>
Short term transfer	Whitemore	4	203	51
	<b>Total</b>	<b>4</b>	<b>203</b>	<b>51</b>
<b>Total</b>		<b>8</b>	<b>573</b>	<b>72</b>

## Governance:

One meeting of the IRC was held in September 2016 to discuss the 2016/17 pricing and past season performance.

## Farm Water Access Plans:

The Annual Farm WAP Audit process has been completed for irrigators applying TI water in the 2016/17 irrigation season. Farm WAPs are in place for all areas where TI water is applied and all irrigators audited were compliant with their Farm WAPs.

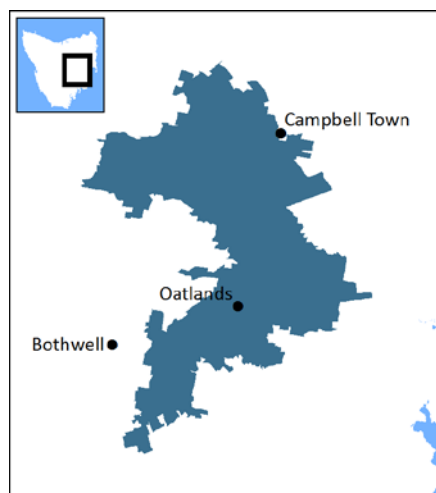


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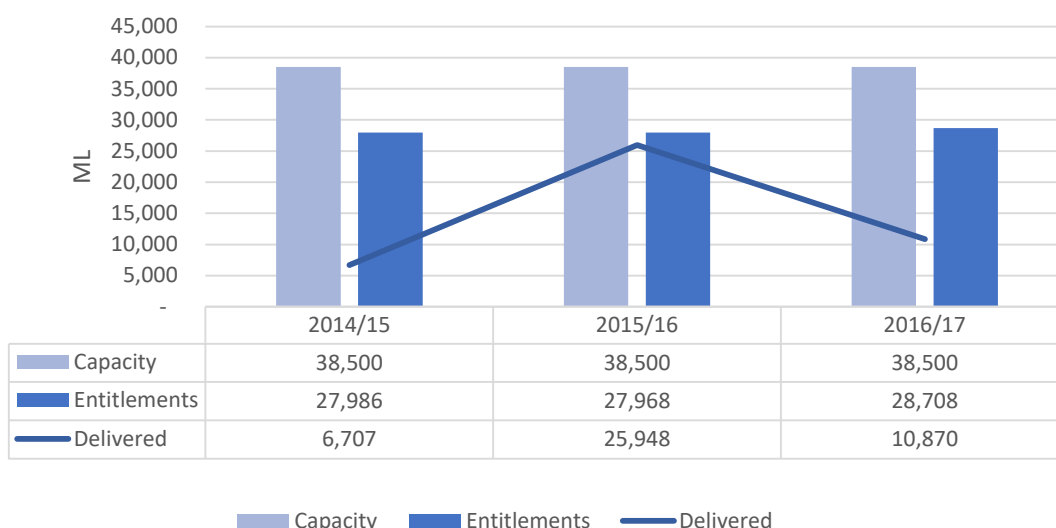
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Midlands Water  
Scheme

## Scheme: Midlands Water Scheme



Midlands Water Scheme



### Water Delivery:

There were a few reasons why the Midlands Water Scheme had a significant reduction in demand in the last season:

- Improved seasonal conditions
- Access to other entitlements
- Flood takes for private dams on the Macquarie River, and
- Floods filling the Blackman Dam

Overall, 10,870ML were delivered for the financial year, with water requirements extending into early winter due to the dry conditions.

Works to address frost impacts continued, with significantly reduced impacts during the 2017 winter.

Problems continued to be experienced at one of the larger outlets due to a range of issues, with collaboration to identify a solution, between TI and the land holder.

46 of 95 irrigation rights accessed water during this season.

## Financial:

The Midlands Water Scheme continues to perform well with expenditure meeting its income. The scheme also continues to have a strong cash position, due to profits from Renewable Energy Credits. However, the income from these continue to be market dependent and cannot be assured in future years.

## Infrastructure:

There were minimal issues with infrastructure in the Midlands Water Scheme during 2016/17, with only a small number of brief outages. This was due to either broader electricity network issues or infrastructure associated with transmission of electricity from the mini-hydro.

Adjustments to the operation of the mini-hydro, including development of new operating scenarios, also significantly contributed to our ability to operate whilst 'islanded' from the broader electricity network.

These improvements helped manage the generator output to match electricity demands at the Floods Creek and Midlands Highway Pump Stations, allowing water deliveries to continue while TasNetworks had outages in the district.

## Environment:

All required environmental programs were implemented during the irrigation season including water quality, erosion, aquatic weed, AusRivas, galaxidi and pest fish monitoring, and none were impacted as a result of the scheme's operation.

Requirements for the passing of natural inflows to Floods Creek occurred, with the only issue being communication between the fish barrier and dam outlet, resulting in a short period of manually setting the flows.

Requirements of the conveyance management plan were met for Macquarie River deliveries, with improved operations due to the presence of higher flows through the system. This was helped along by natural flows and EMIT water deliveries.

## Water Trading:

Whilst minor trading occurred in 2016/17, it mainly focused on either flow rate or minor volumes to the Macquarie River late in the season. This was significantly reduced from the previous year, where the scheme ran close to capacity for much of the year. A summary of trading activity is included in the table below:

Type	District	Number of	Total volume (ML)	Average volume
Limited term transfer	Midlands	1	100	100
	<b>Total</b>	<b>1</b>	<b>100</b>	<b>100</b>
Permanent transfer	Midlands	3	100	33
	<b>Total</b>	<b>3</b>	<b>100</b>	<b>33</b>
Short term transfer	Midlands	11	1,540	140
	<b>Total</b>	<b>11</b>	<b>1,540</b>	<b>140</b>
<b>Total</b>		<b>15</b>	<b>1,740</b>	<b>116</b>

## Governance:

Discussions with the IRC following significant income from the sale of RECs resulted in the Asset Renewal Levee being waived for 2016/17 year. We'll be conducting continual discussions around the management of this income, including potential to underwrite the ARL.

Over the next year, we'll also be focusing on a resolution for the issues surrounding the trading of water from pipelines to the Macquarie River from other zones, following the questions raised by irrigators and the IRC.

## Farm Water Access Plans:

The Annual Farm WAP Audit process has been completed for irrigators applying TI water in the 2016/17 irrigation season. Farm WAPs are in place for all areas where TI water is applied and all irrigators audited were compliant with their Farm WAPs.

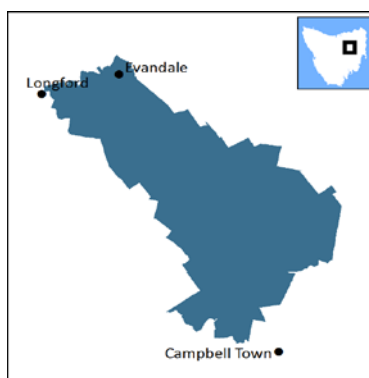


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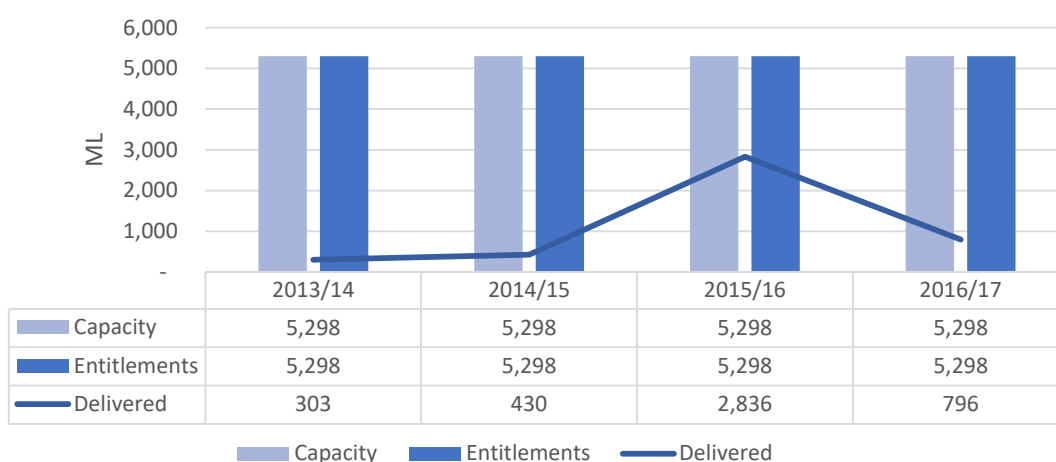
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Lower South Esk

## Scheme: Lower South Esk



Lower Sth Esk



### Water Delivery:

It was a relatively quiet year, with the South Esk River maintaining reasonable flows for most of the season – this meant that demand on the scheme for river users was limited.

Only 15% of the water on issue was ordered during the season and the dam at the end of the season is relatively full. It's expected that the fill regime for the 2017/18 season will be achieved using majority flood take, rather than having to purchase water from Hydro Tasmania.

In total, 7 irrigators requested water from a pool of 16 who hold current irrigation rights.

### Financial:

The scheme has made a small loss for the 2016/17 season. This is primarily due to the expenditure timing and cost recovery, and because pumping costs for the dam fill are still being recovered in a different financial year. A better way of representing this is being considered.

The LSEIS is currently in a negative cash position and as such, the pricing for the 2017/18 season has been set to minimise any further losses while a review of the cause of the overall cash position is undertaken. Once this review is complete and the underlying cause is determined, we'll hold further discussions about future pricing paths if required.

## Infrastructure:

Power surges had been identified as the cause of several problems with motors for the pumps at Milford last season. In the past 12 months, significant work has been undertaken to determine and implement a solution. As a result, power filters have been installed at the pump station. The remaining motors have either been repaired or inspected to ensure these problems won't occur again.

The flooding of June 2016 impacted the large magflow meter at the pump station. A temporary solution was installed to allow for seasonal operation and a permanent replacement was set to be installed in June 2017 that will withstand future cases of inundation.

In line with ANCOLD guidelines, Milford dam has been routinely surveyed and a comprehensive survey report was produced by GHD – the good news is that no significant issues were identified. We should note that after a review of the dam, the current surveillance regime of 3 visual reports per week has now been reduced to just weekly.

## Environment:

We've continued monitoring the water quality and so far, there's no reason for concern, either in the dam or the river results. Please note that any water taken into storage was done in compliance with water licence conditions.

There was also no indication of Blue Green Algae being observed in the Milford Dam.

## Water Trading:

Due to the limited demand for scheme water this year, there has been little activity in water trading over the past year. The trades that did occur were mostly related to the sale of property - rather than the need for additional water. Here's a snapshot of the trades that took place:

Type	District	Number of trades	Total volume (ML)	Average volume (ML)
Permanent transfer	Lower South Esk	2	1,682	841
	<b>Total</b>	<b>2</b>	<b>1,682</b>	<b>841</b>
Short term transfer	Lower South Esk	1	80	80
	<b>Total</b>	<b>1</b>	<b>80</b>	<b>80</b>
<b>Total</b>		<b>3</b>	<b>1,762</b>	<b>587</b>

## Governance:

Last year, one meeting was held with the representative committee to clarify arrangements made about the access to water from the dam outside of the nominal irrigation season.

## Farm Water Access Plans:

A total of 23 Farm WAPs were in place across the Lower South Esk Irrigation District. All irrigators that received TI water had a Farm WAP in place before the water was applied. In accordance with the irrigation district approval conditions, TI completed one Farm WAP audit for the 2016/17 irrigation season. The result of the audit was the irrigator was operating in compliance with their Farm WAP.

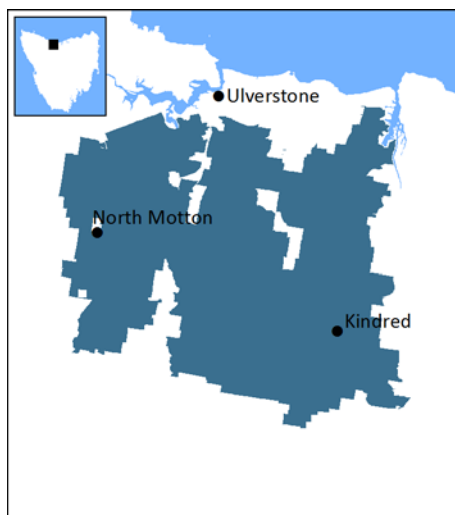


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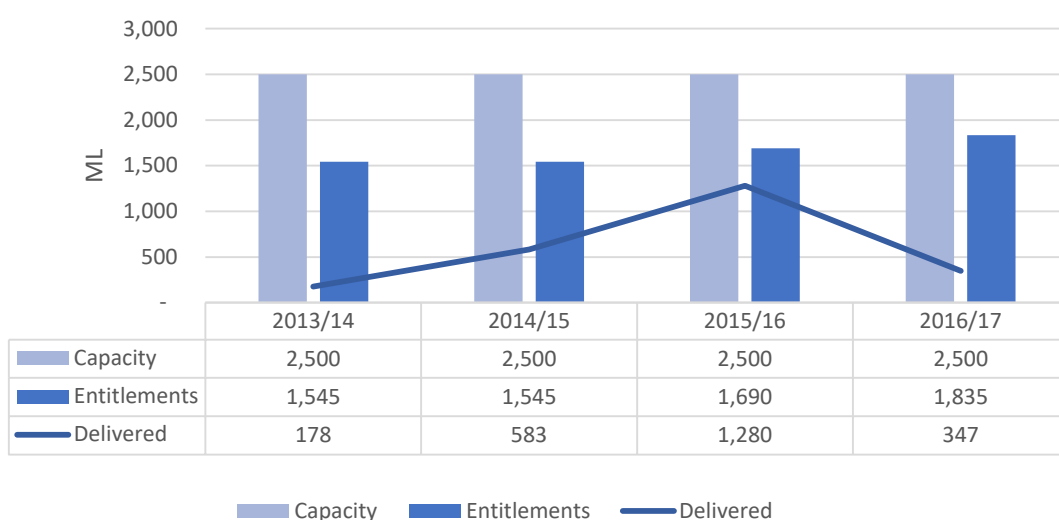
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Kindred North Motton

## Scheme: Kindred North Motton



Kindred North Motton



### Water Delivery:

Overall, the KNMIS scheme worked well over the past season – given the timely rain fall and flooding, the demand wasn't too significant. It's a reflection of these events that only 11 of the 55 irrigators in the scheme accessed their water during the past season.

Going forward, Peter Clarke has taken on the full-time role as scheme operator for KNMIS as Charlie Hardman moves into a part-time position.

### Financial:

Unfortunately, the scheme continues to struggle to meet costs at the current sales volume – and we believe that work will need to be done to establish a viable cost base going forward.

Pricing for the 2017/18 season (while still not recovering all costs) has been increased to bring the scheme prices in line with indexed business case numbers.

Over the coming months, a full review of the cash balance and forward forecast will be undertaken - with the focus being on overall implications of the scheme's financial viability.

## **Infrastructure:**

Minor works have been done at the Sprent dam to improve the issues of debris going into supply pipelines.

One of the Caprari pumps at the Forth pump station has had a significant failure event and is currently awaiting assessment as to why the failure has occurred, as well as the implications this may cause for the remaining pumps.

## **Environment:**

As per requirements, environmental programs were implemented during the irrigation season. This included water quality and aquatic habitat monitoring, where no impacts were identified as a result of the scheme's operation.

## **Water Trading:**

Only 2 trades occurred during the past season: one permanent trade of 10ML and a short-term trade for 135ML.

The remaining and unsold water in the scheme is a concern for the long-term viability of this scheme.

## **Governance:**

One meeting of the IRC was held in September 2016 to present the 2016/17 pricing.

## **Farm Water Access Plans:**

The Annual Farm WAP Audit process has been completed for irrigators applying TI water in the 2016/17 irrigation season. Farm WAPs are in place for all areas where TI water is applied and all irrigators audited were compliant with their Farm WAPs.

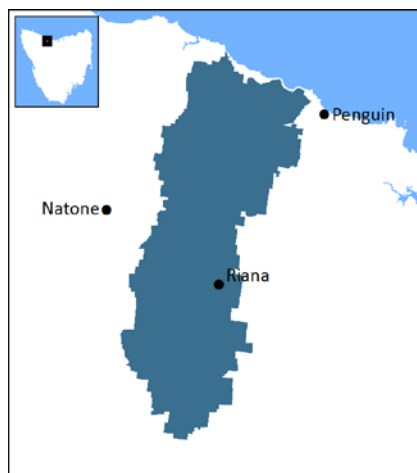


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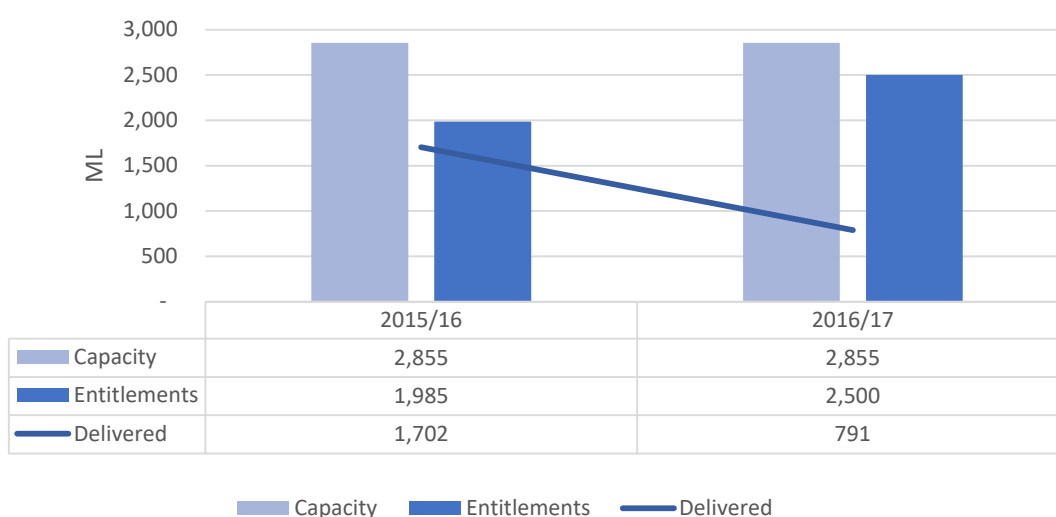
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Dial Blythe

## Scheme: Dial Blythe



DBIS



### Water Delivery:

Generally, demand was low compared with the previous year due to the wetter conditions. The South Riana Dam is now at a high level for the end of the season and no pump fill will be required to ensure volume for 2017/18. While demand is lower than last year, 19 of the 36 irrigators accessed their allocation at some stage during the season.

Peter Clarke will now take on the sole role of scheme operator as Charlie Hardman moves to a part time role in another scheme (but remaining within TI).

### Financial:

The Dial Blythe Irrigation Scheme is continuing to cover operating costs and has been forecast to make a small profit for the 2017/18 season.

## Infrastructure:

The Blyth River pump station incurred significant damage during the 2016 floods - and some of the required repairs have already been undertaken. There still needs to be work done on the revised intake structure in the near future to fully complete the repairs. But please note that the delay in these works will not have any impact on the reliability of the supply in the coming season, as the dam is still at full capacity and these pumps are only required for dam fill operations and not scheme delivery.

The South Riana Pumps have also had works undertaken to repair some alignment issues and are now fully operational without concern.

## Environment:

Water Quality sampling has been completed as required with no issues identified. All water taken into storage was done in compliance with water licence conditions.

## Water Trading:

Access to water to meet demand continues to be of some concern at the extremes of each line, as they are not fully subscribed. Unsold water is only available in the main line close to the dam with limited sale opportunity.

Type	District	Number of trades	Total volume (ML)	Average volume (ML)
Permanent transfer	Dial Blythe	2	55	28
	<b>Total</b>	<b>2</b>	<b>55</b>	<b>28</b>
Short term transfer	Dial Blythe	5	230	46
	<b>Total</b>	<b>5</b>	<b>230</b>	<b>46</b>
<b>Total</b>		<b>7</b>	<b>285</b>	<b>41</b>

## Governance:

One meeting of the IRC was held to present pricing for the 2016/17 season in September. After that, a general irrigators meeting was held to elect a new representative committee.

A further meeting was also held at the request of the IRC to discuss some operational issues relating to the management of the scheme.

## Farm Water Access Plans:

The Annual Farm WAP Audit process has been completed for irrigators applying TI water in the 2016/17 irrigation season. Farm WAPs are in place for all areas where TI water is applied and all irrigators audited were compliant with their Farm WAPs.

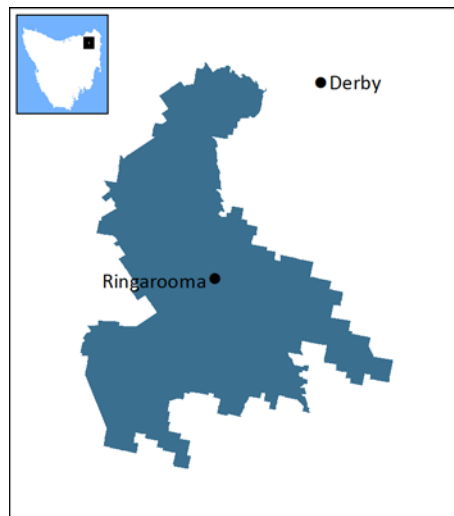


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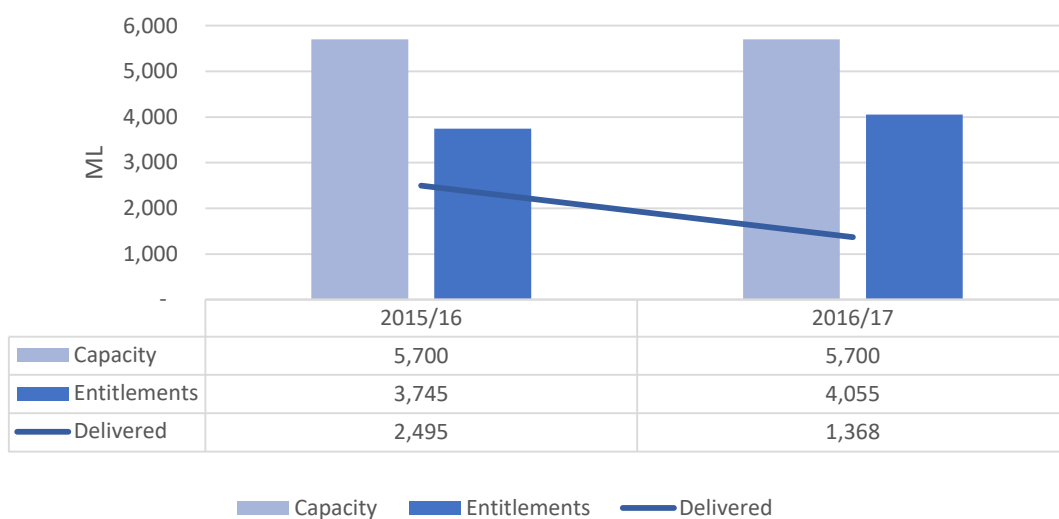
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Upper Ringarooma

## Scheme: Upper Ringarooma



### URIS



## Water Delivery:

Generally, there were no operational issues during the past season - apart from some minor concerns with a few outlets.

Despite a low volume being delivered (compared with last year), over half the holders of entitlements accessed their water allocation: 22 of the 35 irrigators using water in the past year.

## Financial:

The scheme recorded another profitable year and is now in a sound financial position after its second season of operation.

## Infrastructure:

Some work has been undertaken on the alignment of pumps at the Cottons Bridge pump station to correct some movement that has occurred.

The June/July 2016 flooding had led to some damage downstream of the dam spillway, which understandably required repairs to be carried out. However, this was mostly covered by insurance claims.

The high river levels in New River have washed away a section of the river bank, and this has created potential exposure of the pipeline. Some preliminary work has been completed, but there's still more to be done to ensure the pipe doesn't become exposed.

## Environment:

There were no concerns with water quality requirements and the flow expectations in the Ringarooma River were also met. All water taken into storage was done in compliance with water licence conditions.

## Water Trading:

Only one trade was undertaken during the past year, with a permanent transfer of 50ML.

## Governance:

A meeting was held with the IRC to discuss pricing in the past year. And in November, a subsequent meeting open to irrigators was held. The purpose of the meeting was to elect a revised membership of the IRC, as the scheme has now transitioned from being 'in construction' to 'operational' - and the size of the committee has been reduced to just 5 members.

## Farm Water Access Plans:

The Annual Farm WAP Audit process has been completed for irrigators applying TI water in the 2016/17 irrigation season. Farm WAPs are in place for all areas where TI water is applied and all irrigators audited were compliant with their Farm WAPs.

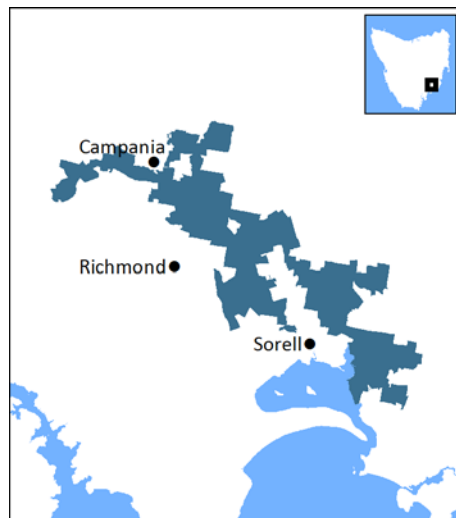


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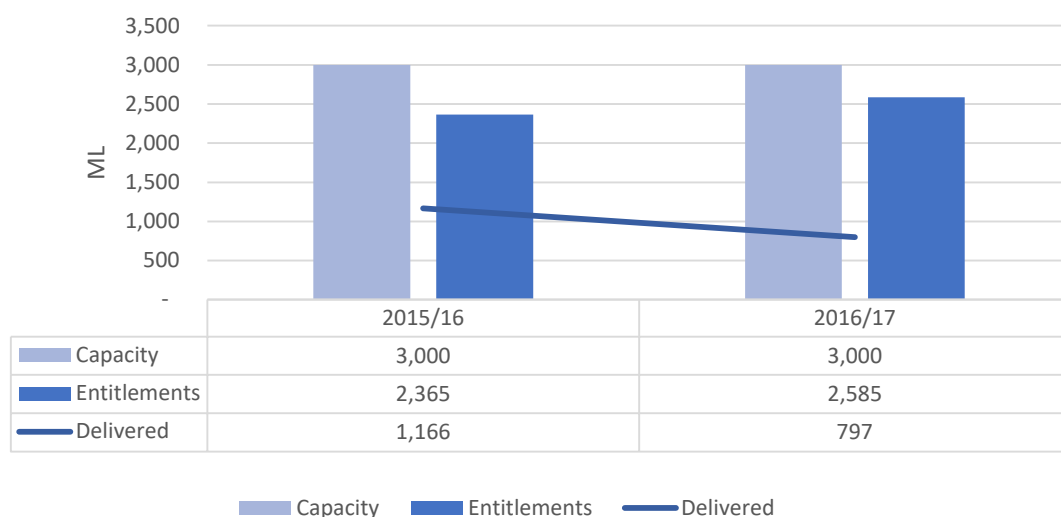
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South East Stage 3

## Scheme: South East Stage 3



SEIS 3



### Water Delivery:

With much wetter climatic conditions during 2016/17, water deliveries reduced to 797 ML from the previous year – with much of this being delivered in the second half of the season. Combined with experience in operating the scheme, this allowed smooth delivery of all orders throughout the season.

Low deliveries did present some issues with smaller boost pumps, being able to efficiently deliver small volumes - whilst maintaining pressure in the pipe lines. Minor SCADA works increased the reliability of the system to minimise pump cycling, with further investigations underway to improve the pump's efficiency.

35 of the 60 irrigation right holders accessed some of their water during the past year.

## Financial:

Fixed revenue is not recovering all fixed expenditure, due largely to TasWater fixed costs are still having an impact on the budget position of the scheme. The scheme will carry these costs while remaining summer entitlements are sold, which will help to recover the previous losses. The future sale of winter entitlements will also help the financial position of the scheme going forwards.

## Infrastructure:

Minor work has been done to assist with delivery of small volumes of water through the booster pumps at Shrub End and Table Hill – this came about because of increased pump cycling during low flow rates. In addition to this, repairs were required for a leak on the mainline, which shut down the scheme for half a day during summer. This had minimal impact on irrigators, due to low demand at the time of the repair.

A new outlet, including a 200m supply line, was constructed at Forcett to connect water supply to a new vineyard that's currently under development.

There were no issues with the delivery of water to irrigators during normal operations.

## Environment:

During the irrigation season, groundwater and surface water monitoring was completed – there were no impacts detected as a result of the scheme's operations.

## Water Trading:

Permanent water purchases have continued to increase the entitlements on issue by 220 ML to 2,585 ML for the summer irrigation delivery period. Trading between irrigators was limited, given the reduced demand.

Type	District	Number of	Total volume (ML)	Average volume
Limited term transfer	Sorell (Stage 3)	1	10	10
	<b>Total</b>	<b>1</b>	<b>10</b>	<b>10</b>
Permanent transfer	Sorell (Stage 3)	1	10	10
	<b>Total</b>	<b>1</b>	<b>10</b>	<b>10</b>
Short term transfer	Sorell (Stage 3)	2	25	13
	<b>Total</b>	<b>2</b>	<b>25</b>	<b>13</b>
<b>Total</b>		<b>4</b>	<b>45</b>	<b>11</b>

Demand for delivery of winter water entitlements has increased in the scheme, with at least one large vineyard development requesting winter delivery – this is under investigation.

## Governance:

Election of the Irrigator Representative Committee as part of the transition to operations was completed with a committee of 5 irrigators elected. The committee consists of Anthony Bayley (chair), Brad Grattidge, Colin Houston, Carmel Torenus and Neville Mendham.

Minor amendments to the district boundary were appointed as a result of water purchases by a land holder on the edge of the district.

## Farm Water Access Plans:

The annual Farm WAP audit process has been completed for irrigators applying TI water in the 2016/17 irrigation season. Farm WAPs are in place for all areas where TI water is applied and all irrigators audited were compliant with their Farm WAPs.



# SCHEME

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Self-Managed Schemes

## Self-Managed Schemes

### Winnaleah Irrigation Scheme Augmented (WISA):

The operational agreement between TI and Winnaleah Irrigation Scheme Limited (WISL), who administer the scheme, has now been finalised. As part of this process the recommendation to replace TI as the Responsible Water Entity (RWE) for the District has commenced with the expectation that the role of RWE will be with the WISL for the 2017/18 season.

WISL and TI have worked to manage the assets of WISA with reports specifically undertaken on Cascade Dam, while a periodic de-watering was undertaken allowing a complete inspection of the outlet conduits and the upstream face of the dam.

A potential area of concern has been identified with the older sections of WISA and a connection to the transmission lines from the Musselroe Wind Farm which is leading to potential voltage spikes when in contact with the pipeline. Irrigators have been advised of the potential for this to occur and operational staff have a revised SWMS in place for working in these areas.

### Farm Water Access Plans:

The annual Farm WAP audit process has been completed for irrigators applying TI water in the 2016/17 irrigation season. Farm WAPs are in place for all areas where TI water is applied and all irrigators audited were compliant with their FWAPs.

### Cressy Longford Irrigation Scheme (CLIS):

CLIS continues to operate successfully under a self-management arrangement with TI regularly attending board meetings with RWE Cressy Longford Irrigation Scheme Limited (CLISL)

Some of the infrastructure in the CLIS is now approaching the end of its working life and discussions on access to the ARL funds are ongoing.

Discussions on finalising recent agreements on water supply with Hydro Tasmania are in their final stages.



# SCHEME

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Togari Water Supply  
(TWS)

# Water Supply Schemes

## Togari Water Supply (TWS):

Limited by storage capacity in Galesford Dam.

This is a “water supply” scheme not an irrigation scheme.

### Operations:

TWS primarily provides wash down water for dairy farms operating in the Togari district, with only small volumes used for irrigation.

In the past season 130ML was delivered to users of the scheme.

The scheme infrastructure is aging in some parts and several repairs were required where sections of PVC pipe have begun to fail.

Work continues to be undertaken to review the hazard category of the Galesford Dam which is the principle source of supply. Focus is on the likely impact of a dam failure and the impact on property.

The current priority of works required on this dam will be reviewed once a final position on the hazard category has been achieved in line with TI’s management protocols on TI dams.



# SCHEME

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River Improvement  
Schemes

## River Improvement Schemes

River Improvement Schemes are managed to increase the ability of flood waters to recede as quickly as possible.

### Montagu River:

Extensive discussions have been held with members of the Montagu River scheme to determine the method of calculation of rates. This has been agreed in principle by members at a meeting in July 2017.

Works were planned to be carried out during the season but due to delays in obtaining approval from Crown Land Services (CLS), conditions were unsuitable when permits were provided. Further work is required in ensuring works can be undertaken when conditions allow.

Environmental surveys have been conducted and a management plan prepared which was submitted with the CLS application.

### Welcome River:

Several meetings have been held over the past year between TI and members of the Welcome River Improvement Scheme. The focus of these meetings has been centred on the ongoing viability of the scheme and discussions on options to move to self-management.

The ability to carry out works to improve flows remains of concern to members. At present no works have been carried out on the river and future works are on hold until the management structure is finalised.

## Definitions

<b>ANCOLD:</b>	Australian National Committee of Large Dams
<b>ARL:</b>	Asset Renewal Levy
<b>BGA:</b>	Blue Green Algae
<b>CLISL:</b>	Cressy Longford Irrigation Scheme Limited
<b>CLS:</b>	Crown Land Services
<b>DLP:</b>	Defect Liability Period
<b>FSL:</b>	Full Supply Level of a dam
<b>FWAP:</b>	Farm Water Access Plan
<b>IRC:</b>	Irrigator Representative Committee
<b>PRV:</b>	Pressure Reducing Valve
<b>PSV:</b>	Pressure Sustaining Valve
<b>RWE:</b>	Responsible Water Entity
<b>RWUG:</b>	Ringarooma Water Users Group
<b>SCADA:</b>	Supervisory Control and Data Acquisition
<b>SWMS:</b>	Safe Work Method Statements
<b>TI:</b>	Tasmanian Irrigation
<b>VIR:</b>	Visual Inspection Report
<b>VSD:</b>	Variable Speed Drive
<b>WISL:</b>	Winnaleah Irrigation Scheme Limited