



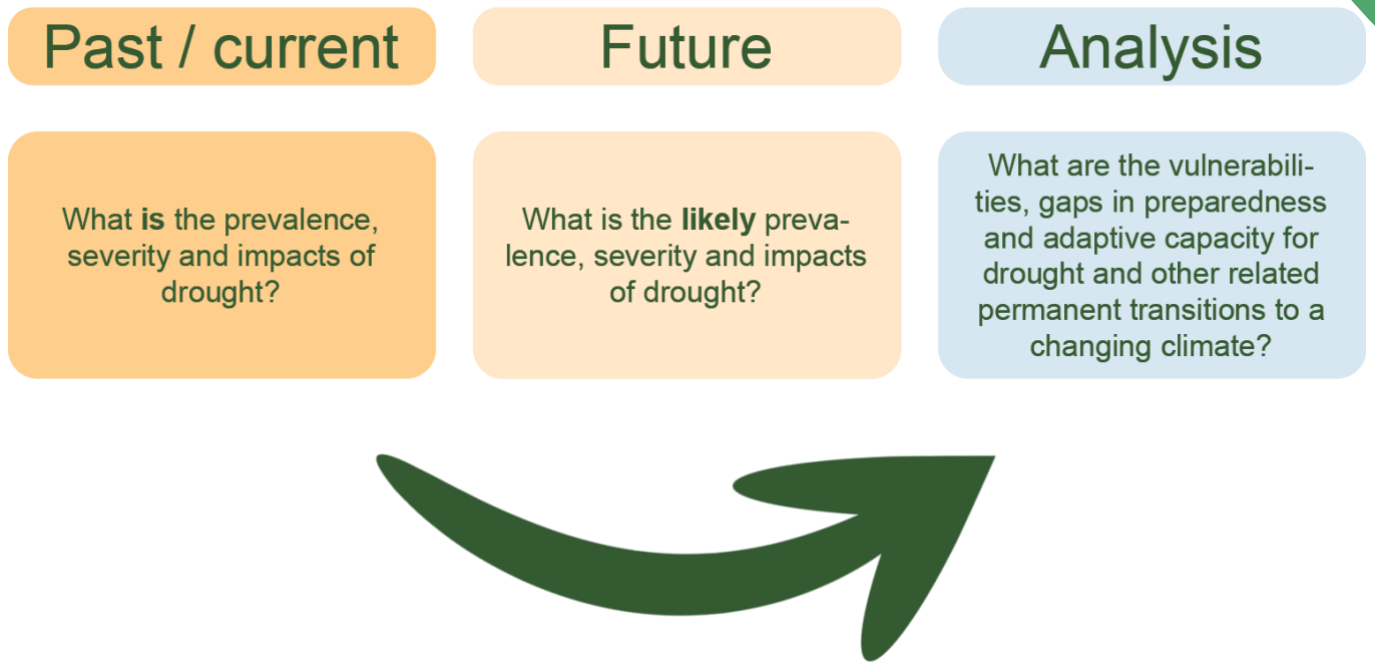
Drought Ready Tasmania

Drought Risk, Resilience & Adaptive Capacity Data



Purpose

The purpose of this report is to provide a snapshot in time of the indicative and potential drought impacts for the North West region of Tasmania. It answers the following three questions.



The North West region drought data report will support the engagement activities of the Regional Project Coordinator and underpin the development of the Regional Drought Resilience Plan for the North West region with regional stakeholders. This summary report is accompanied by a detailed full report, which includes all data sources and references.

Drought resilience is the ability to adapt, reorganise or transform in response to changing temperature, increasing variability and scarcity of rainfall and changed seasonality of rainfall, for improved economic, environmental and social wellbeing. This report analyses the resilience of agricultural, natural environment and community systems to drought.

The North West Region

Agriculture and community

The North West region has a land area of 23,065 km², a population of just under 120,000 and is comprised of the following Local Government Areas (LGAs): Burnie, Central Coast, Circular Head, Devonport, Kentish, King Island, Latrobe, Waratah-Wynyard and West Coast.

Compared to Tasmania as a whole, households in the North West region are skewed towards the lower end of household incomes, people tend to be less educated, older and more likely to need care. King Island has the least level of disadvantage of

the North West region LGAs while people within the West Coast LGA demonstrate the most disadvantage.

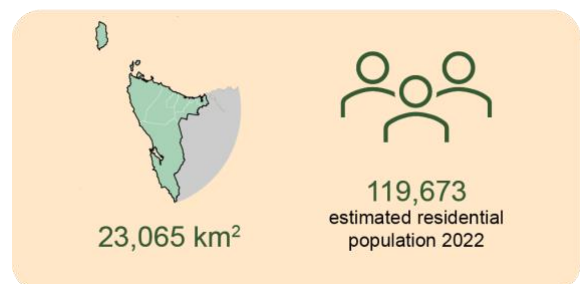


Figure S-1: North-western area and population

The North West region is noted for its prime agricultural land along its northern coast (Classes 1 to 3).

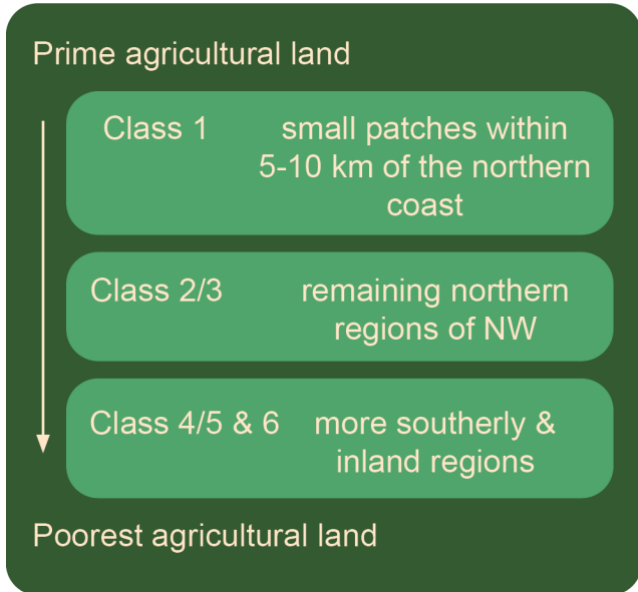


Figure S-2: Prime agricultural land

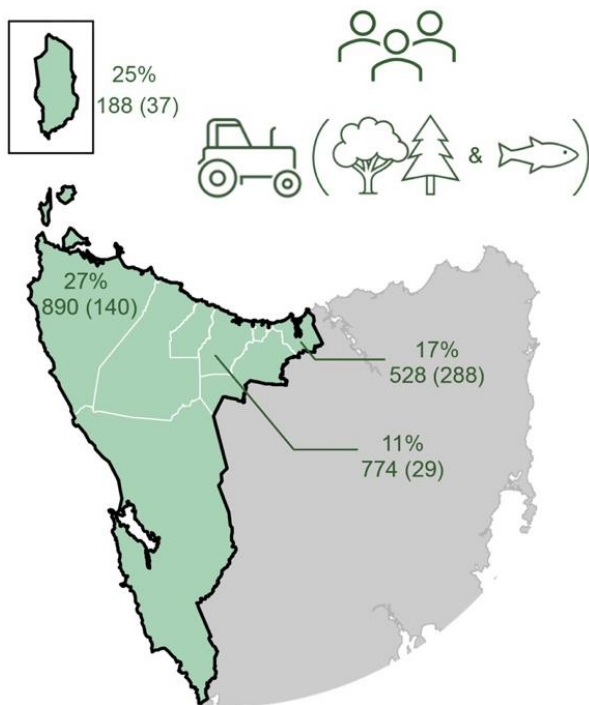


Figure S-3: Agricultural workforce per LGA (forestry and fisheries in brackets)

About a quarter of the population of Circular Head and King Island LGAs work in primary industry. There are almost 900 people employed in agriculture alone in the Circular Head, with almost

800 in Devonport LGA and around 500 in Latrobe LGA.

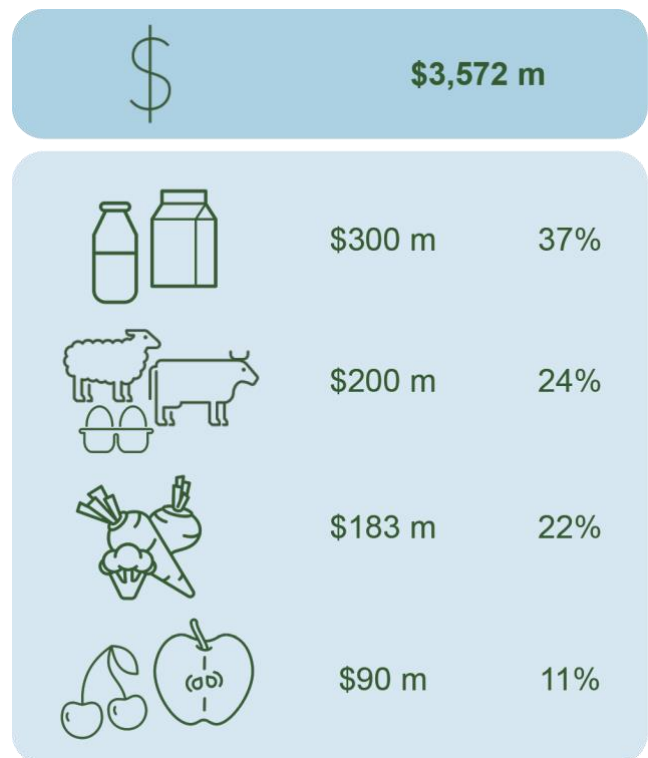
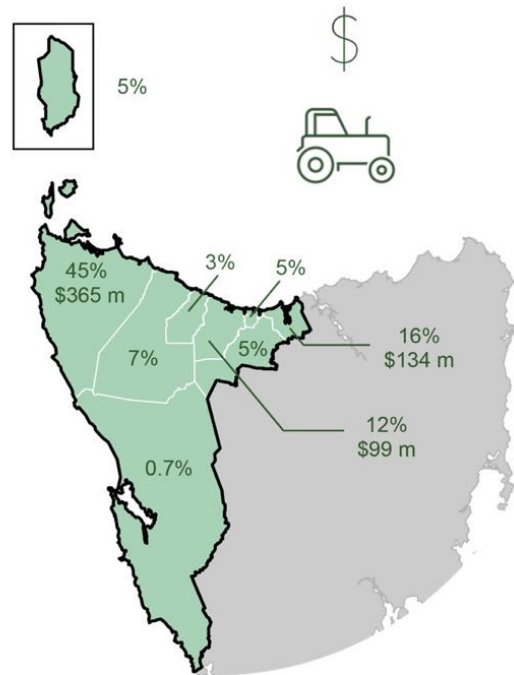


Figure S-4: Regional agricultural output

Circular Head, Central Coast and Latrobe account for 73% of the region's agricultural output. Dairy, livestock products (excluding dairy) and vegetables make up approximately 83% of the value of agricultural enterprises within the North West region, with fruit an additional 11%.

Natural environment

The region spans 19 catchments - 15 catchments wholly within its boundaries and 4 partially within the region.



Figure S-5: Regional catchments and Ramsar wetlands

Outside the areas of modified land are vegetation communities including dry eucalypt forest, native grasslands, wet eucalypt forest and woodland, rainforest and in the coastal or elevated regions, areas of scrub, heathland and coastal complexes.

There are threatened ecological communities in the region.

Threatened ecological communities

- Eucalyptus ovata* / *E. brookeriana* / *E. viminalis* forests
- Lowland native grasslands
- Alpine sphagnum bogs
- Melaleuca ericifolia* swamp forest
- Subtropical and temperate coastal saltmarsh
- King Island communities
- Giant kelp marine forests of SE Australia

Figure S-6: Threatened ecological communities

Parts of the Tasmanian Wilderness World Heritage Area sit within the Kentish and West Coast LGAs.

Past climate trends

Major recent droughts have occurred across the North West region in 2006 and 2015, with more localised droughts occurring in 1994, 2008, 2014, 2017 and 2019. These events offer insights on the impacts on agriculture and the natural environment, and the potential resilience of communities to future droughts.

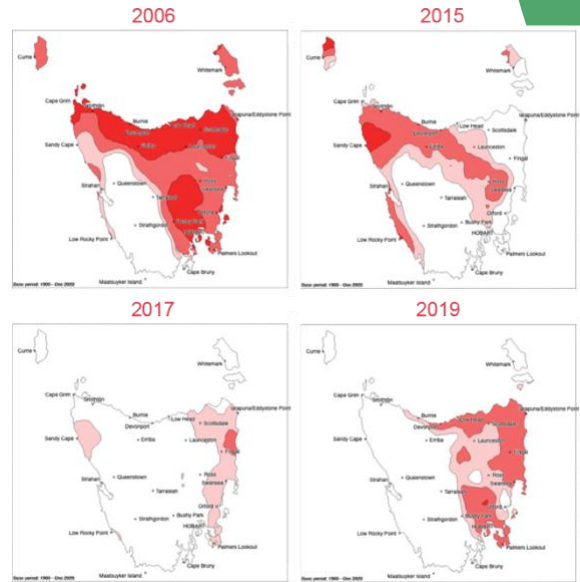


Figure S-7: Past low rainfall years (indicated in red, dark red is lowest on record)

Evapotranspiration is an indicator incorporating both water availability and temperature. Increased evapotranspiration needs to be balanced with increased rainfall to avoid water deficit.

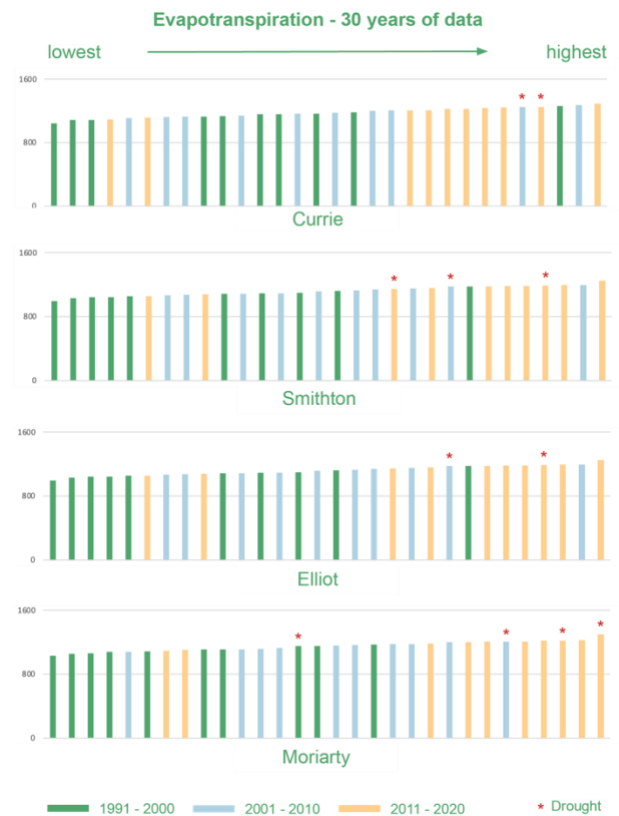


Figure S-8: Evapotranspiration over 30 years (mm, drought years marked with red asterisk)

There appears to be increasing evapotranspiration across the four Bureau of Meteorology sites examined in this report when viewed by decade.

Projected climate changes

While the modelled 2070 rainfall levels are predicted to be slightly lower, the seasonality of rainfall is expected to change.

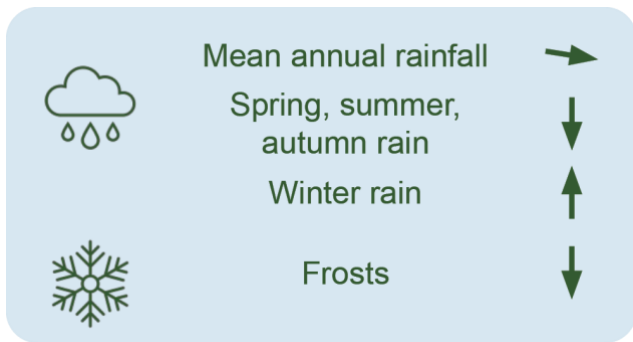


Figure S-9: Projected climatic change trends

Four key north western towns were examined for climate variables: Currie (King Island LGA), Smithton (Circular Head LGA), Elliot (Waratah-Wynyard LGA and Moriarty (Latrobe LGA).

Days over 30°C and average temperatures are predicted to increase by 2070.

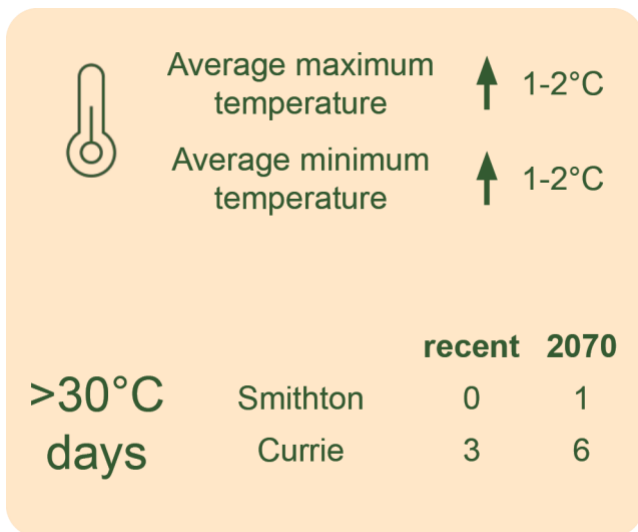


Figure S-10: Projected temperature changes (number of days over 30°C)

Overall average regional summer soil moisture is predicted to decrease in 2070.

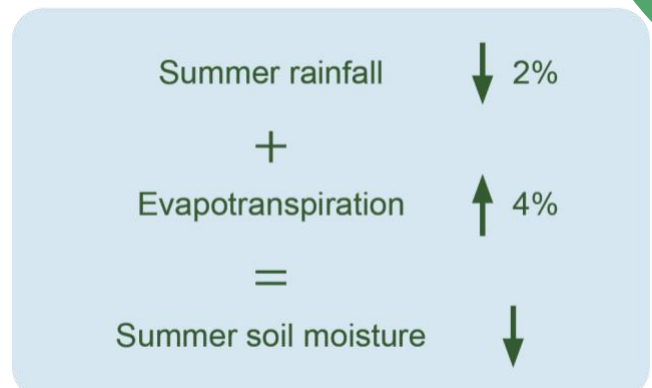


Figure S-11: Projected summer soil moisture changes

For catchments in the North West region projected changes to annual flows will overall be minimal through to the end of the century, however the summer and autumn flows are expected to markedly decrease over this period. This is due to decreases in summer runoff and to the projected decrease in rainfall in the Central Highlands of Tasmania.

Risk, adaptive capacity and resilience

Drought resilience was determined by analysing the potential drought impact (risk) and adaptive capacity of each of the nine LGAs in the North West region. This showed Central Coast had higher adaptive capacity potential to drought, whereas Devonport and West Coast display lower adaptive capacity to drought. The potential drought impact (risk) showed King Island, Circular Head and Kentish with higher risk rating, while remaining LGAs were lower based on the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) Community Vulnerability & Resilience to Drought Index (CVRDI). The potential vulnerability of LGAs in the North West region to drought impacts are on the lower end of the index.

Therefore, the North West region has moderate resilience to manage future drought conditions (Figure S-12). King Island, Circular Head and Devonport LGAs have lower resilience to drought and Central Coast LGA has higher resilience to drought. However, it is important to note that climate change will increase the frequency, severity and duration of extreme events such as periods of intense heat or rainfall. While the drought risk may be projected to moderately increase in most of North West Tasmania, it is going to be one of many factors that land managers and communities need to prepare for and respond to in the future.

Agriculture, forestry, and fisheries are major drivers of the economy in the North West region, both in terms of value-adding and employment. As the climate continues to change these industries need to continue to adapt and transform to ensure they are resilient to drought and other changes in climate.

Climate change is already impacting on agriculture and the natural environments and communities on which it relies. If communities can increase their adaptive capacity and resilience to future drought events, then it will also assist in increasing their resilience to other extreme events. It is important to note that more frequent, longer duration and severe droughts may reduce adaptive capacity.

Much work has been done and continues to provide secure water supplies for agriculture in the region, through irrigation schemes and individual landowner investments in storage dams. In general, the region also has a high diversity of agricultural enterprises, both at the property and regional levels. These are two important factors that assist with the region's existing resilience to drought. The development of the Regional Drought Resilience Plans will help to identify regional needs, priorities and challenges and inform future investment to improve economic, social and environmental resilience to drought.

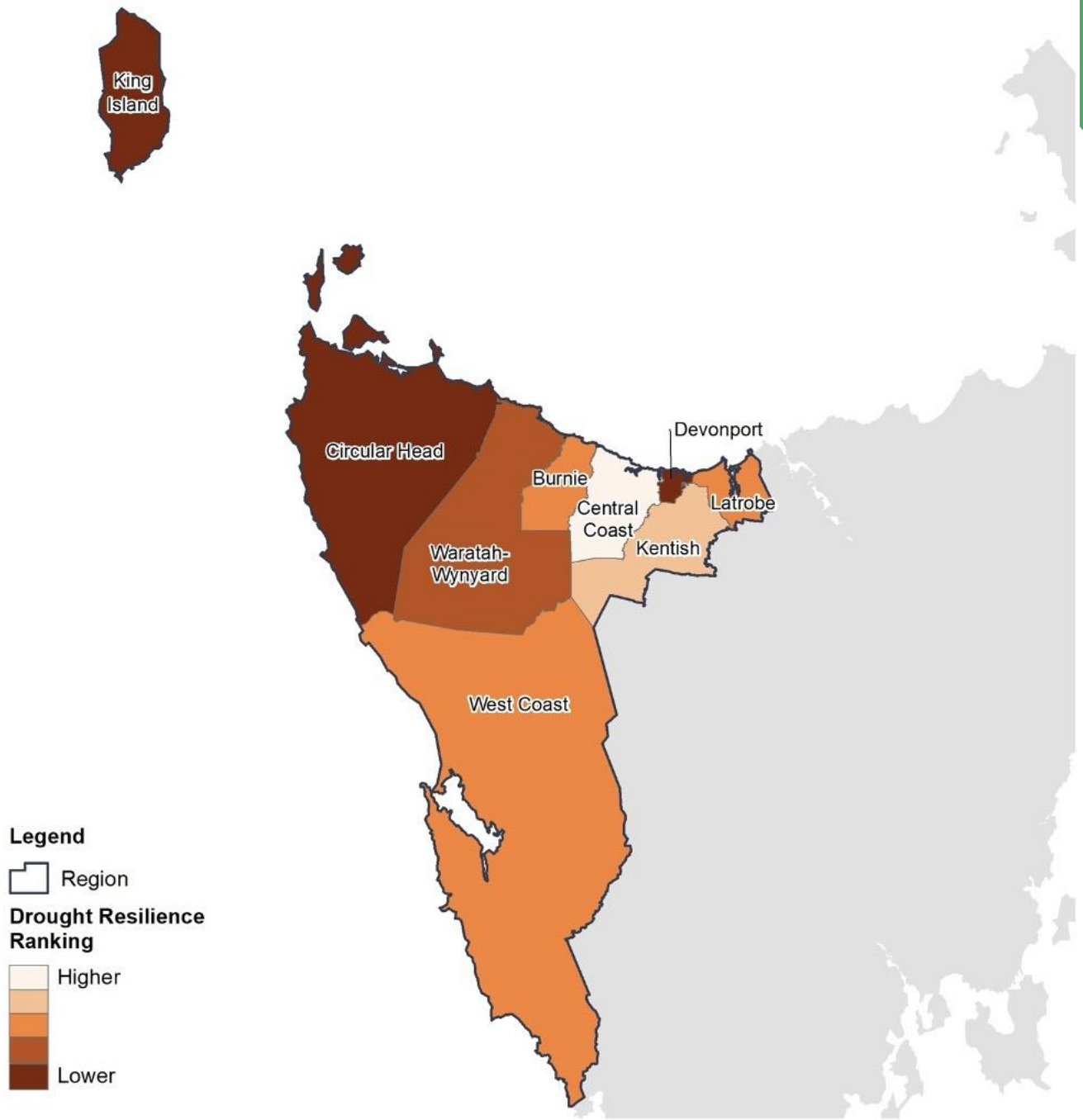


Figure S-12: Drought resilience of the North West region LGAs

Recommendations

Based on the key findings in this report the following recommendations have been identified.

Table S-1: Recommendations

Theme	Recommendation
Use this report to inform community engagement undertaken by the Regional Project Coordinator	<ol style="list-style-type: none"> 1. Test the risk, adaptive capacity and resilience to drought findings by LGA with the community to see if it reflects on-ground experience to past events. 2. Investigate the My Climate View forecast data as a tool to support further community engagement, which explores future climate predictions for individual towns and provides a specific snapshot of how conditions will change in the coming years.
Utilise the data in this report to inform the development of the Regional Drought Resilience Plan	<ol style="list-style-type: none"> 3. Undertake win-win, no regrets actions to assist with short to medium-term adaptation to future drought conditions (i.e. avoid maladaptation). 4. Ensure the Regional Drought Resilience Plan develops long-term transformative actions that consider all five capitals; physical, natural, financial, human and social. 5. Prioritise action in those communities with lower resilience by building adaptive capacity and reducing vulnerability to potential impacts of drought. This includes King Island, Circular Head and Devonport LGAs in the North West region. 6. Continue to develop irrigation schemes where feasible that balance environmental water needs. This is occurring in Don, Sassafras-Wesley Vale & Flowerdale areas where irrigation schemes are currently under development. 7. Work with land managers to continue to improve and diversify their agricultural operations to be more adaptable to changing climatic conditions as well as extreme climate events (such as drought). This will have broader benefits for agriculture, the natural environment and communities. For example, this may include sustainable agriculture practices that improve soil health through increasing organic matter inputs and reducing losses for greater soil moisture retention. 8. Build technical literacy in regions to enable land managers to utilise current and emerging technology to better plan and prepare for changes in seasonal conditions. 9. Ensure actions consider community health, including mental health, as important aspects of resilience. Be aware that rates of mental health disorders are likely to be higher than is actually reported.
Undertake monitoring, evaluation, reporting and learning (MERL) for the Regional Drought Resilience Plan	<ol style="list-style-type: none"> 10. Establish clear, measurable and robust indicators of drought resilience in the Regional Drought Resilience Plan, informed by this report and emerging best-practice research. 11. Monitor drought resilience over time and update the Regional Drought Resilience Plan as required, including supporting data.



Drought Ready Tasmania

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Register to have your say

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