2025 Waterfowl, Environment and Climate, Conditions and Forecasts Report

12 December 2025

SOUTH AUSTRALIA
Government of South Australia
Department for Environment and Water

Conditions – review and outlook

- Climate influence on bird abundance & distribution
- Rainfall summary
- Climate drivers
  - Southern Oscillation
  - Indian Ocean Dipole
  - Southern Annular Mode
- Summer rainfall & temperature forecasts
- River Murray inflows, storages and flow to SA
- Lake Eyre Basin

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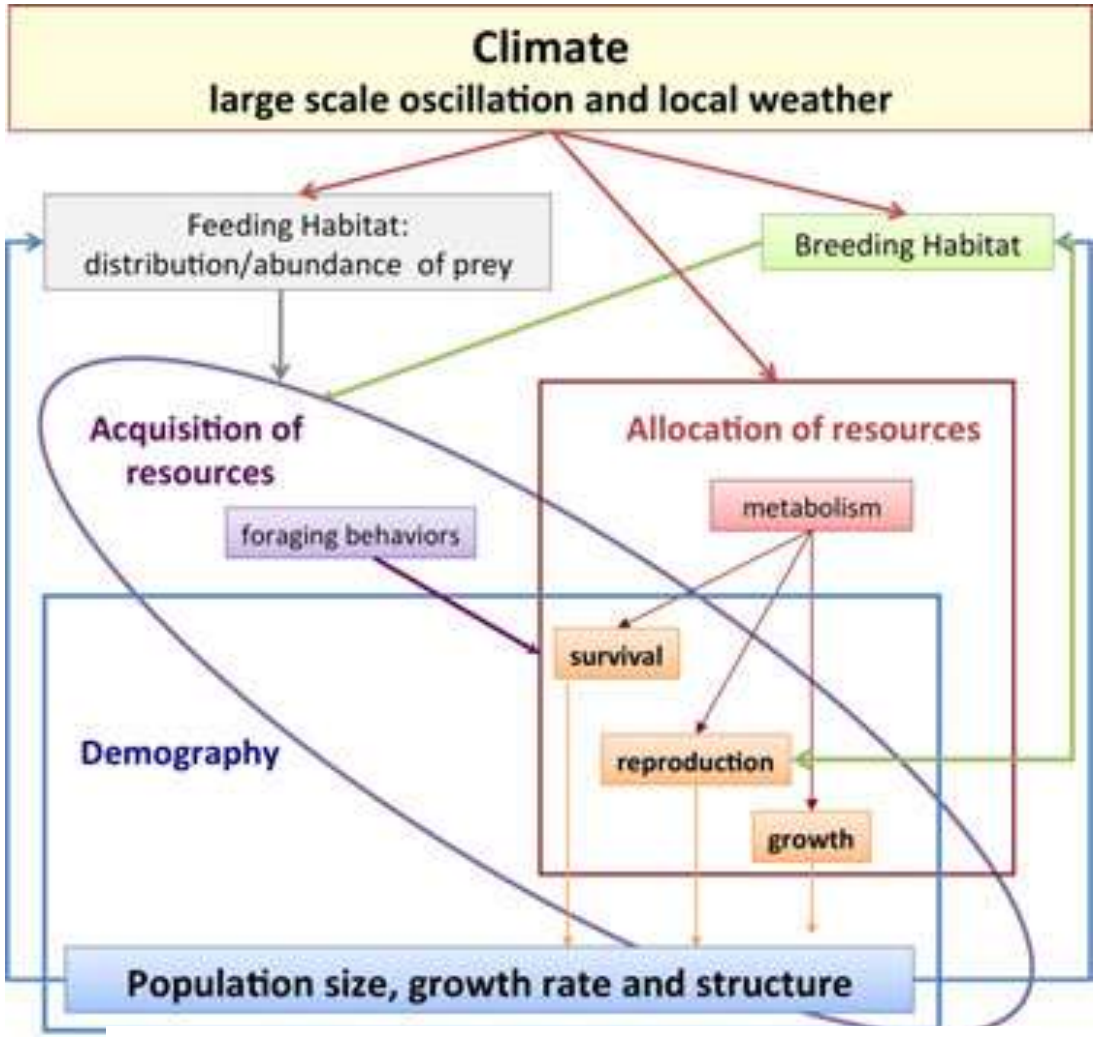
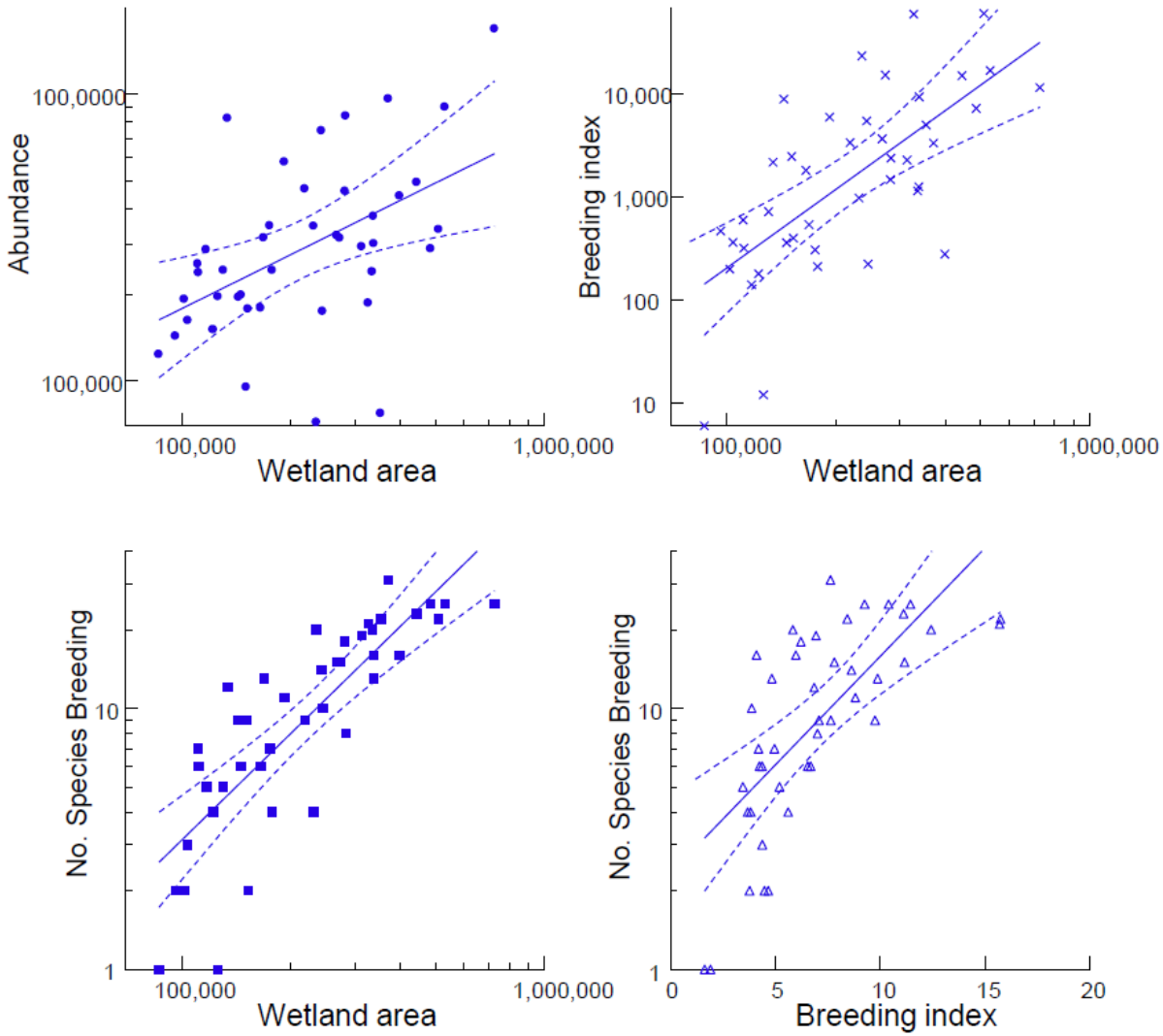
Department for Environment and Water

Climatic conditions affecting bird abundance & demographics



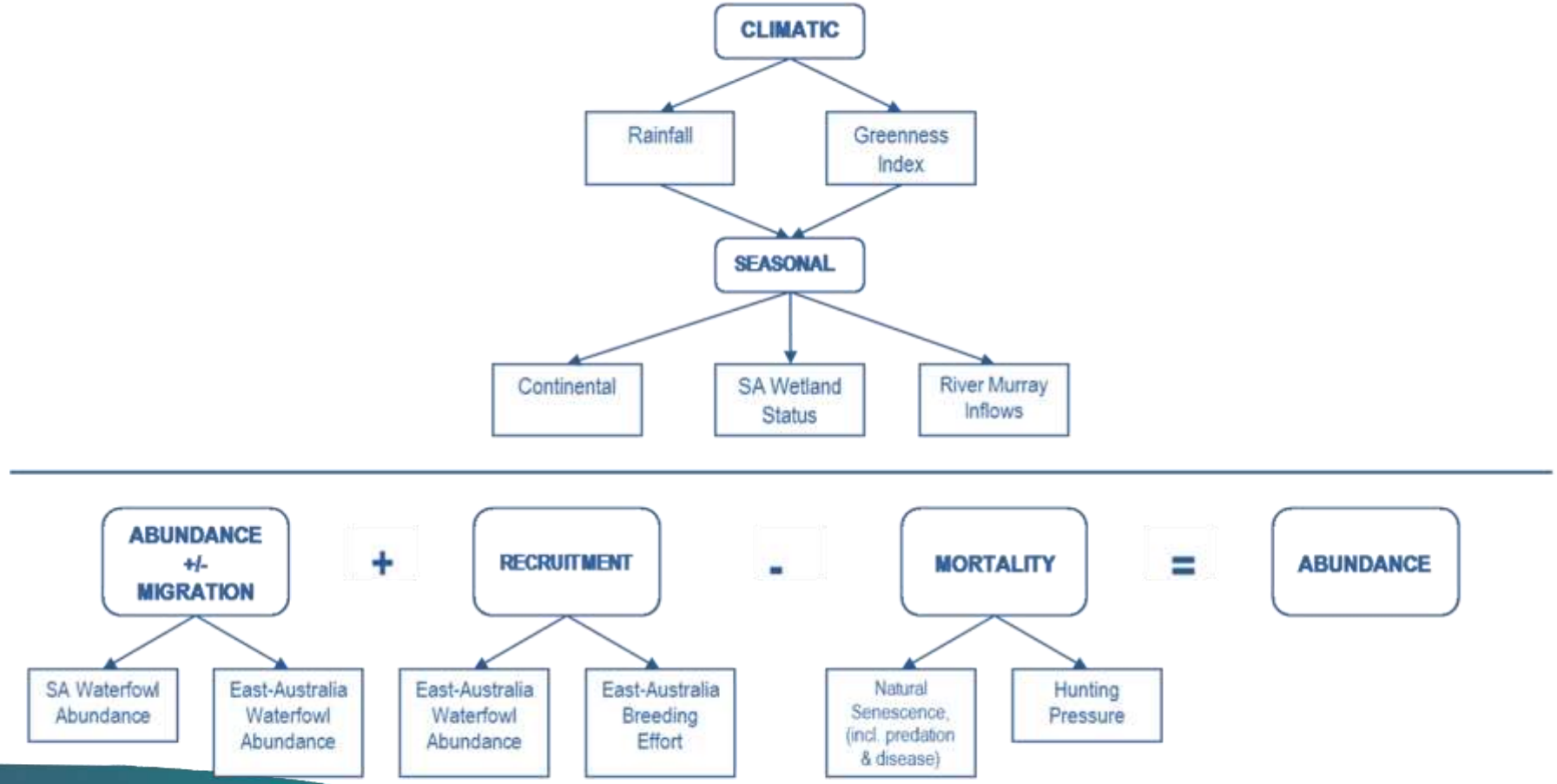
Source: Jenouvrier, S., 2013. Impacts of climate change on avian populations. *Global Change Biology*, *19*(7), pp.2036-2057.



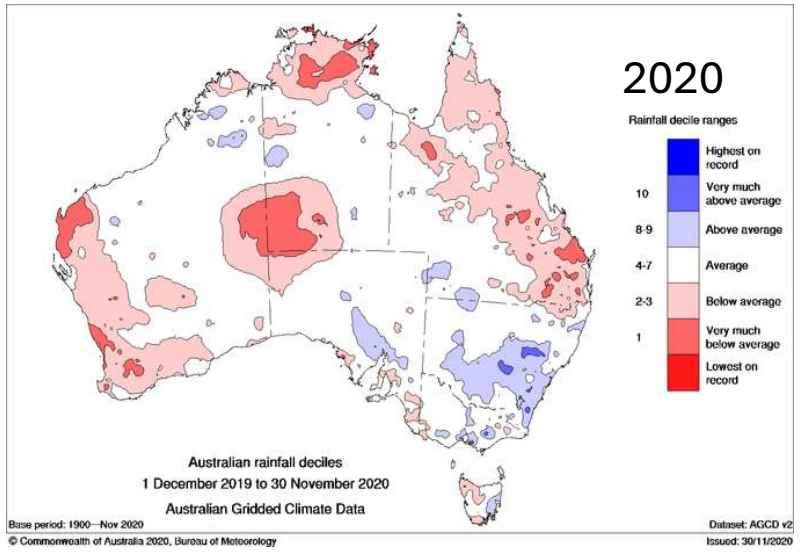
Source: Porter J.L., Kingsford R.T., Francis R., Brandis K, Ahern, A., Y. Tidou & D. Simpson (2023) *Eastern Australian Waterbird Aerial Survey -October 2025 Annual Summary Report*

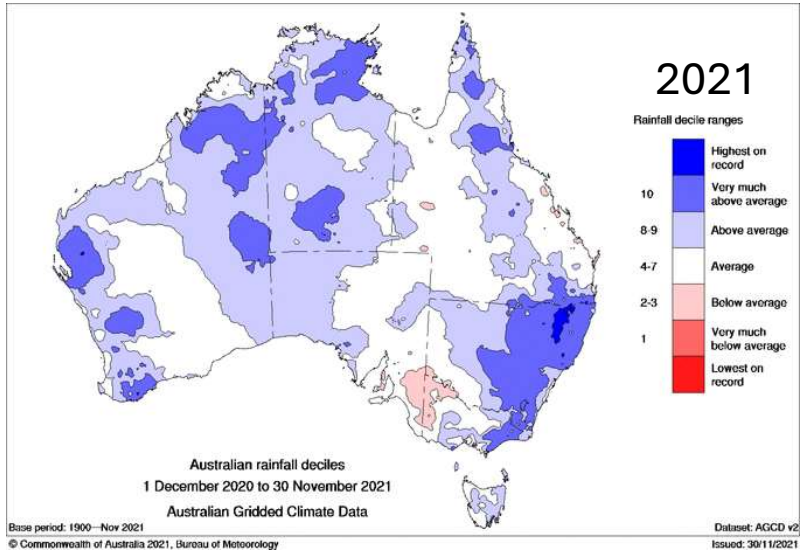
Duck and quail hunting in South Australia

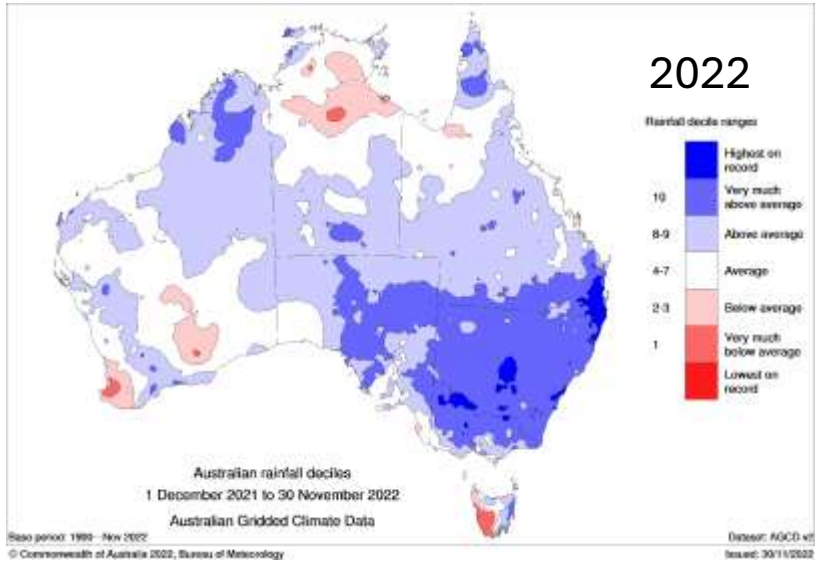
Factors influencing waterfowl species and populations

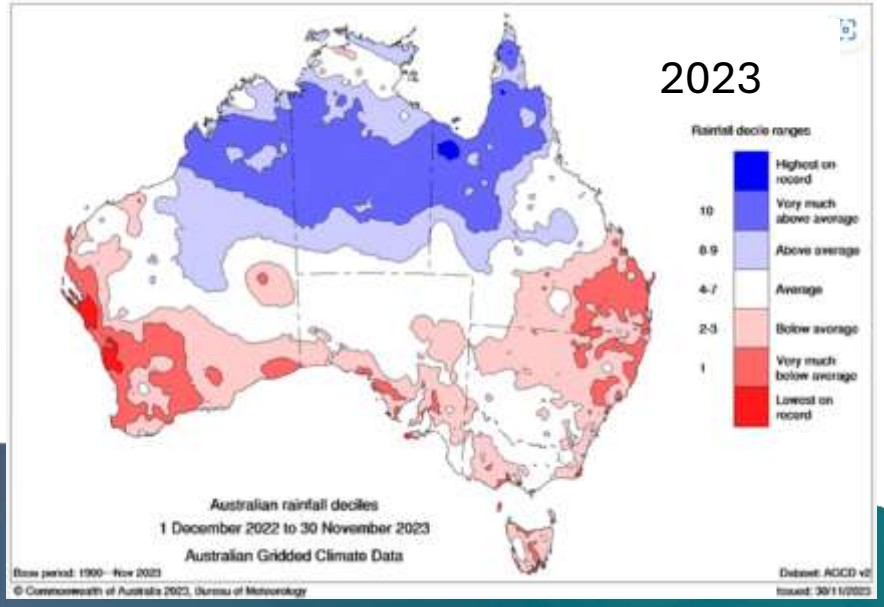


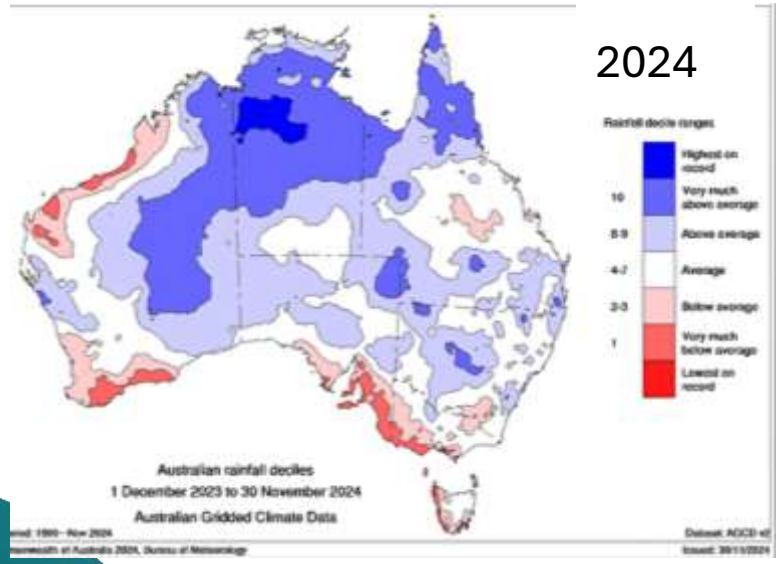
Rainfall Deciles 2020 to 2025 (1 Dec - 30 Nov)

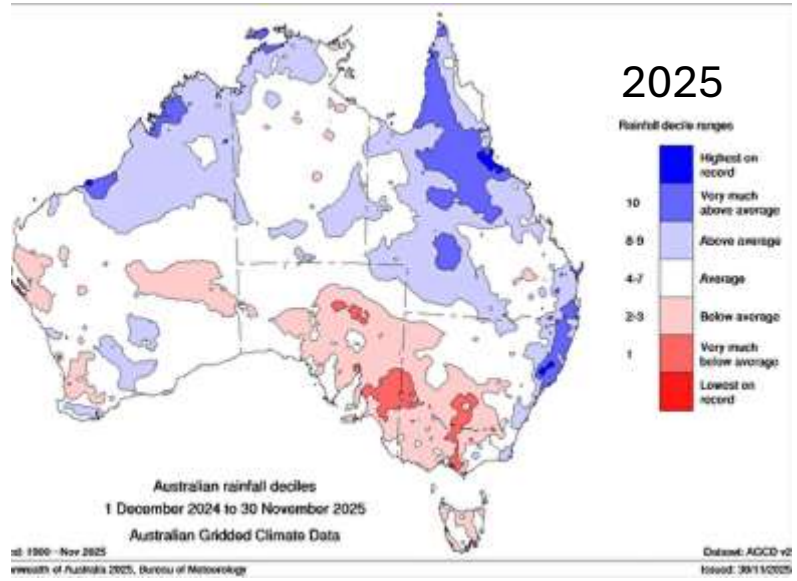






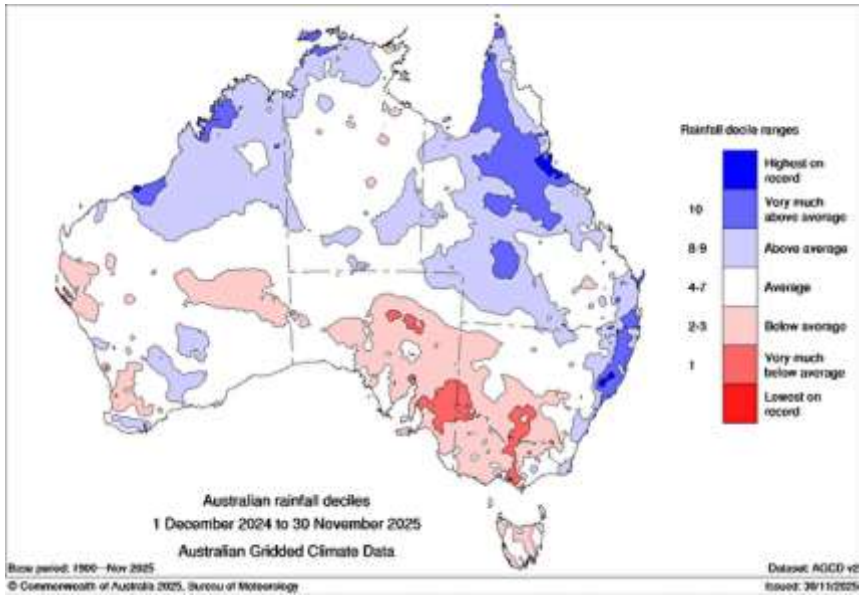




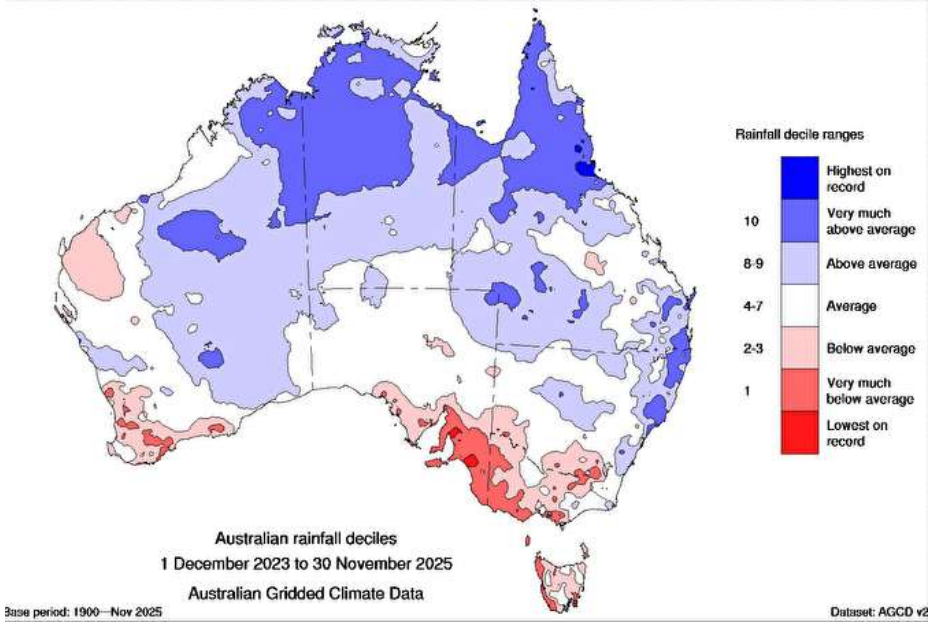


12, 24, 36 and 48 month rainfall deciles

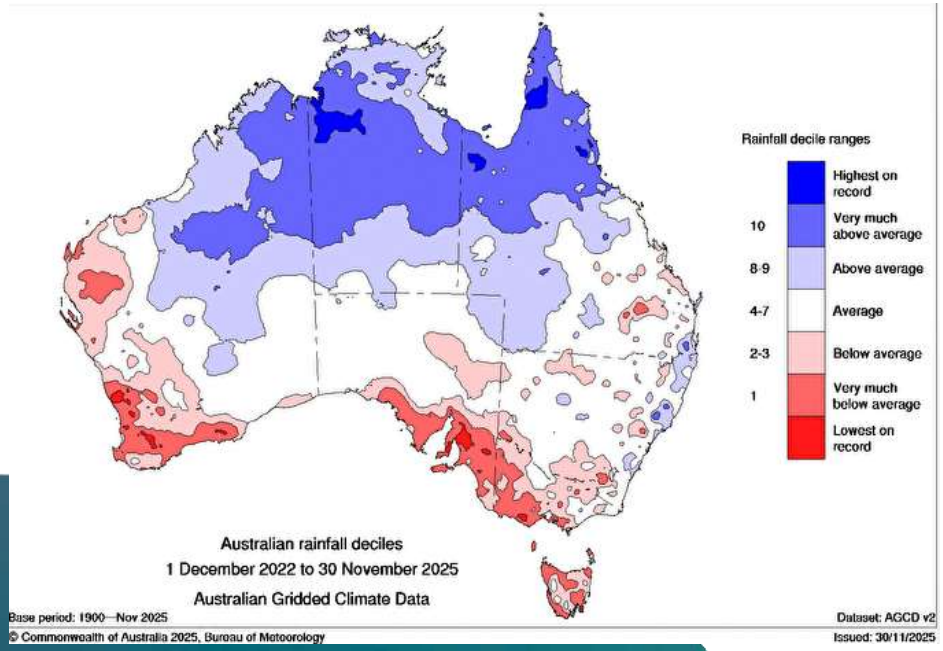
12 month



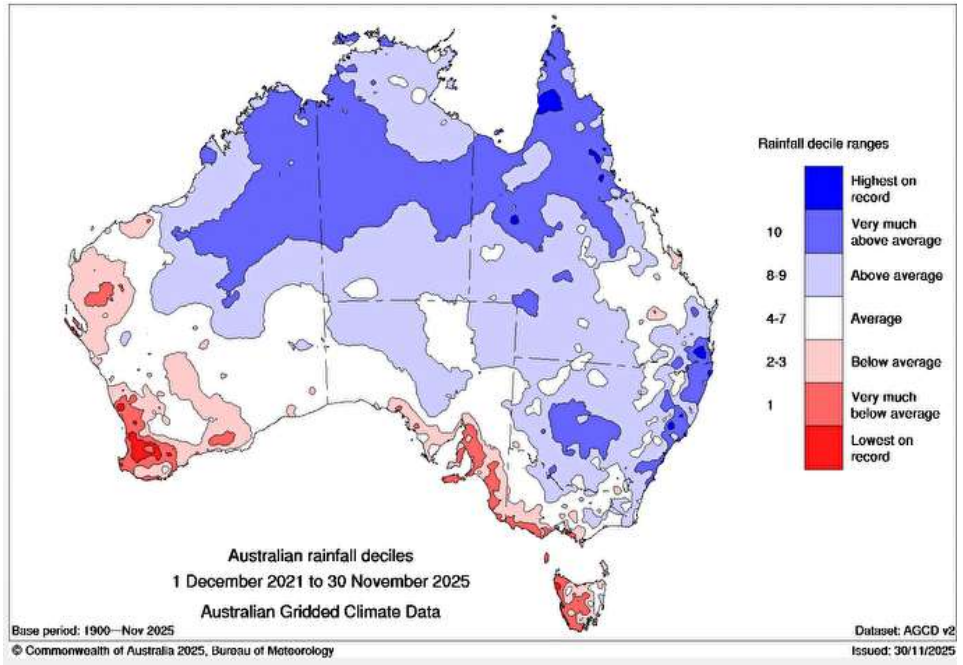
24 month



36 month



48 month



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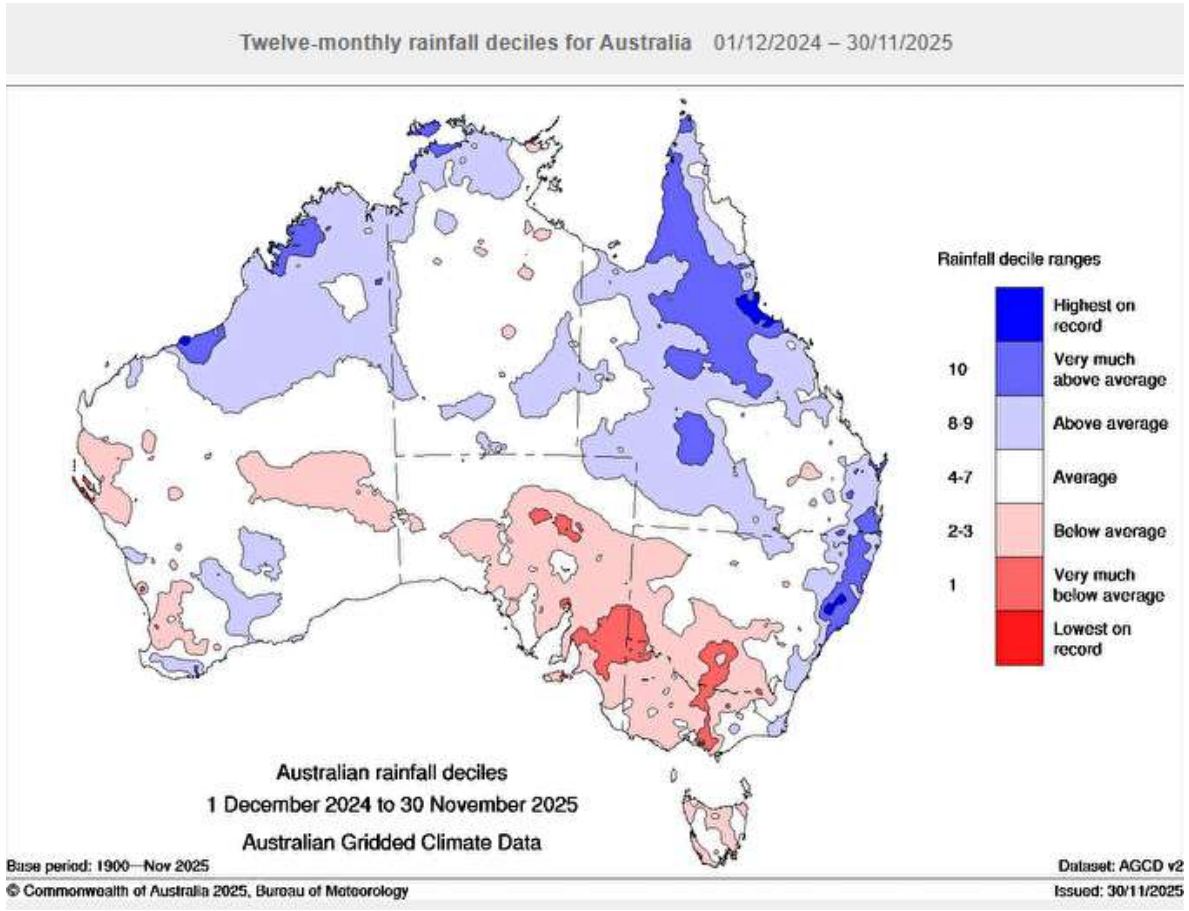
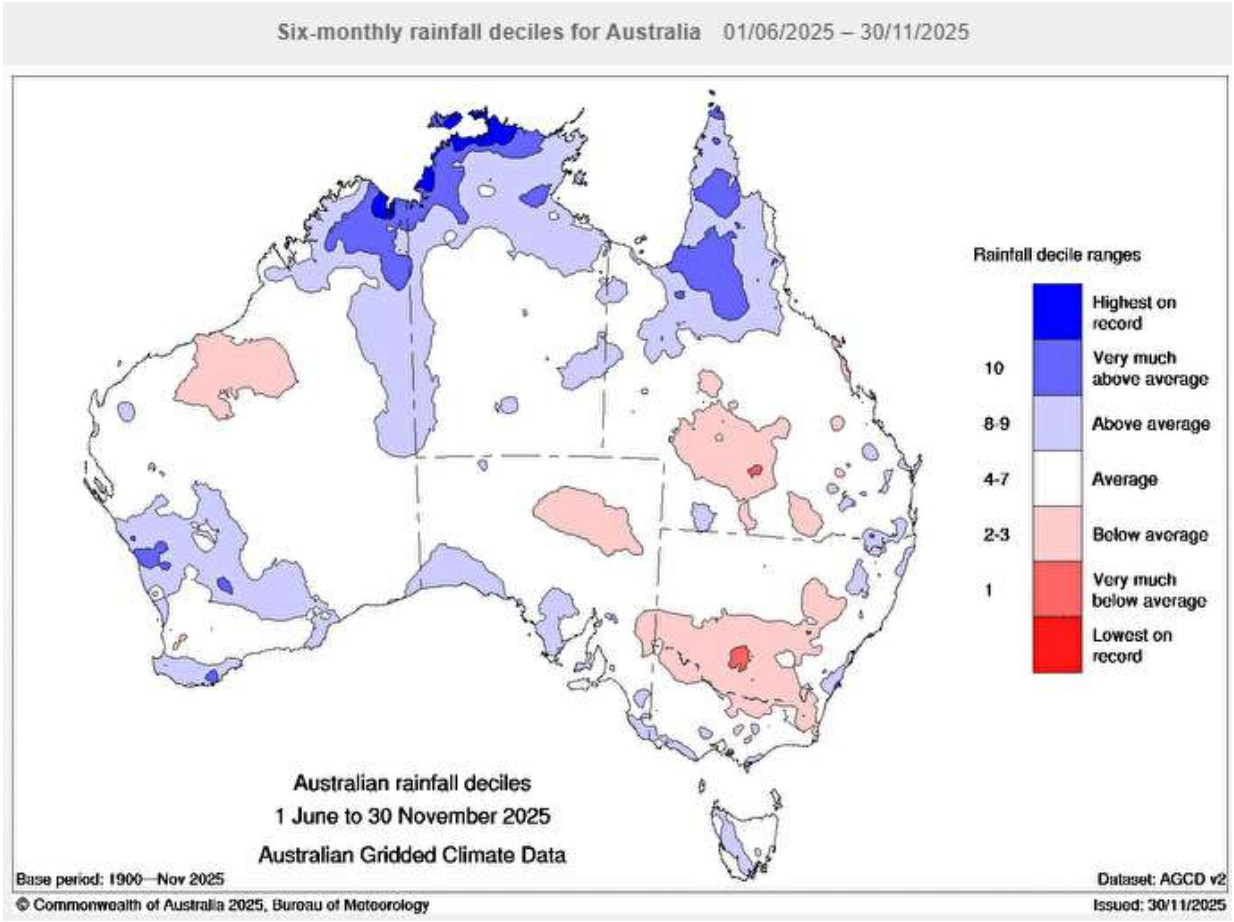
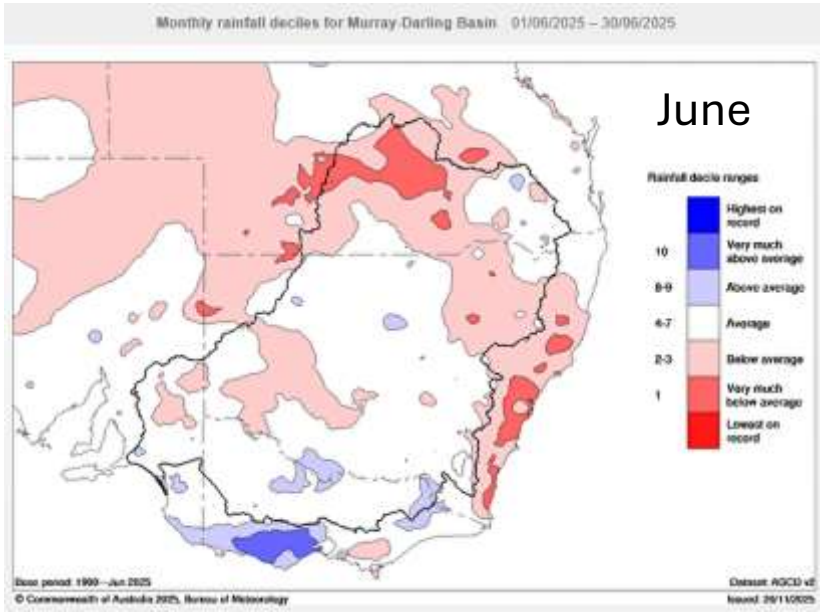
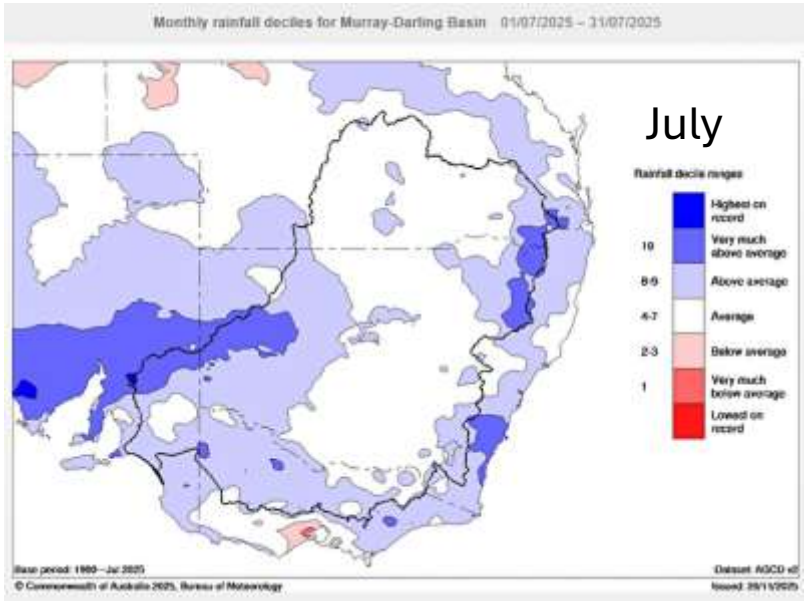
SA Rainfall deciles: 12 month & 6 month

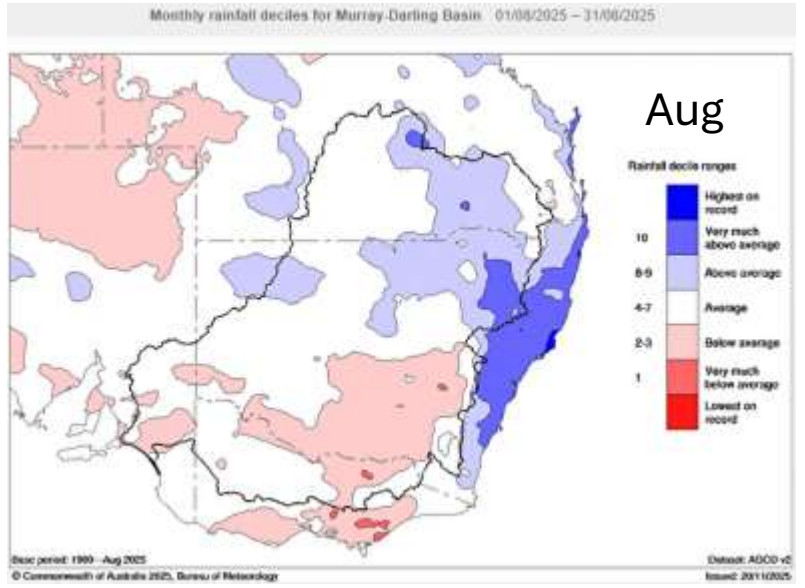


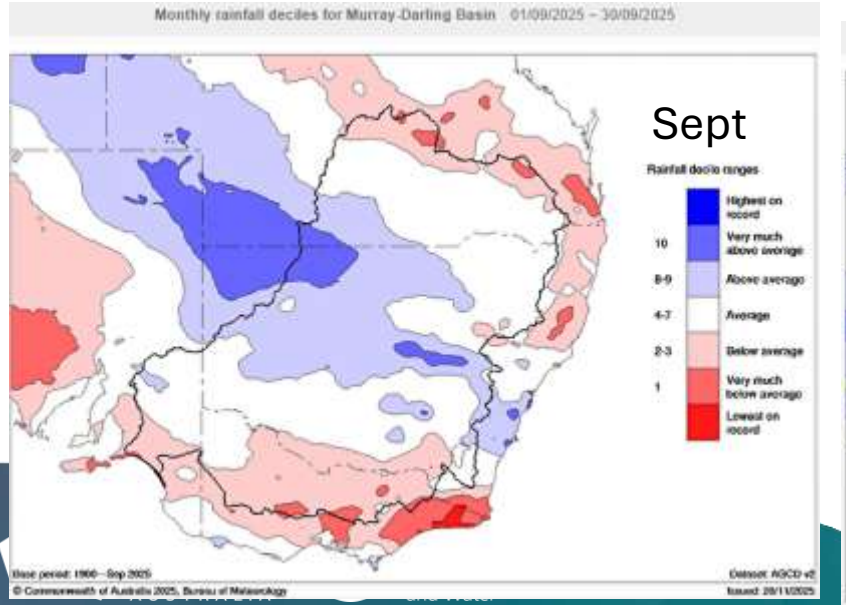


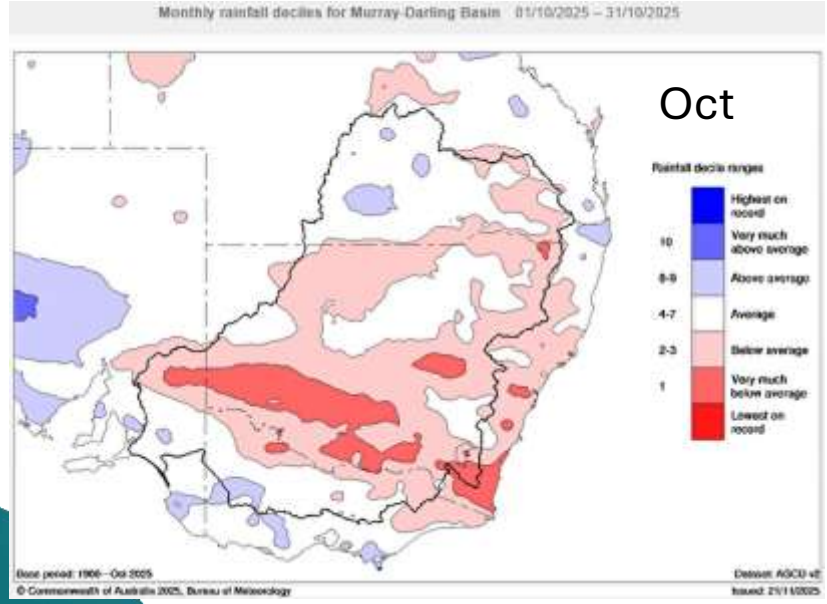
2025 Rainfall in the Murray Darling Basin

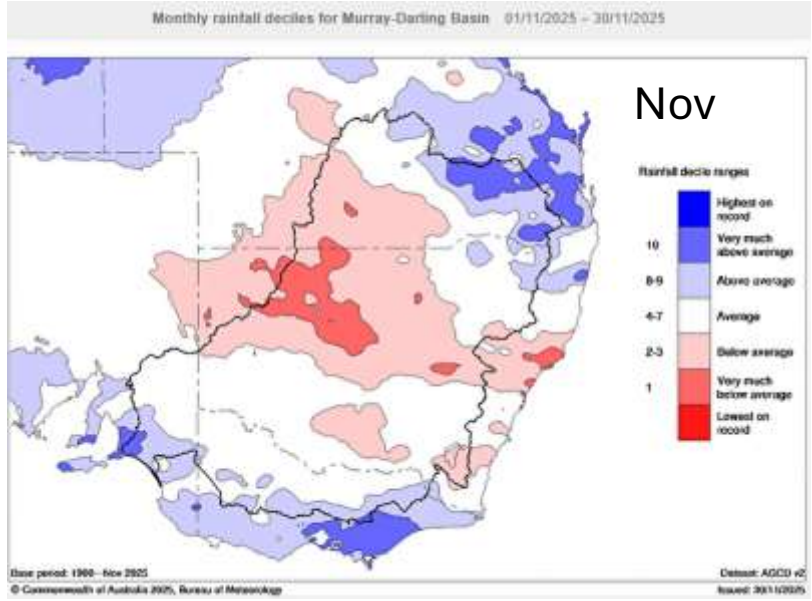




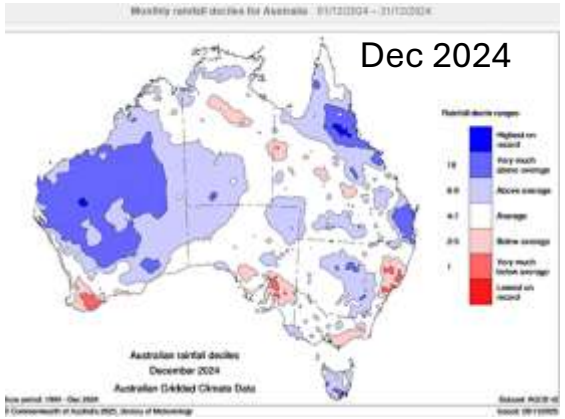


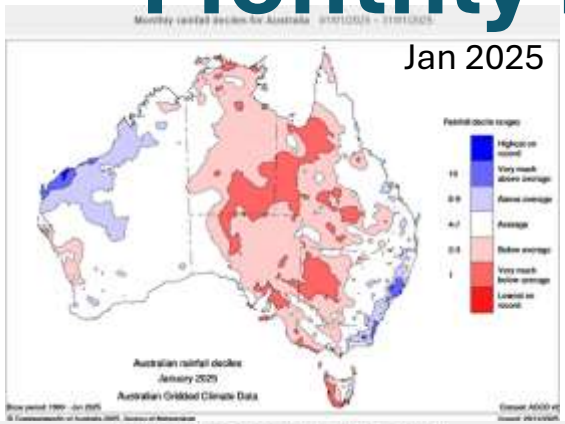


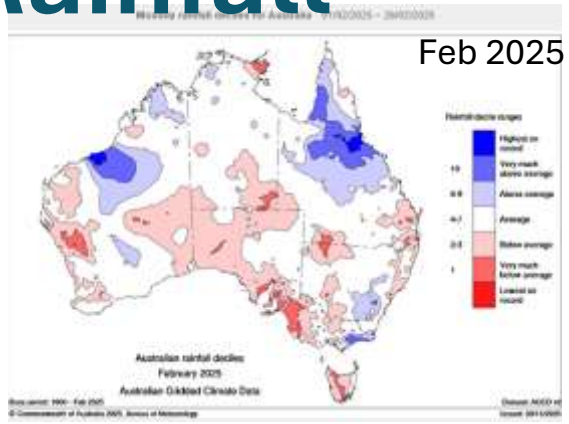


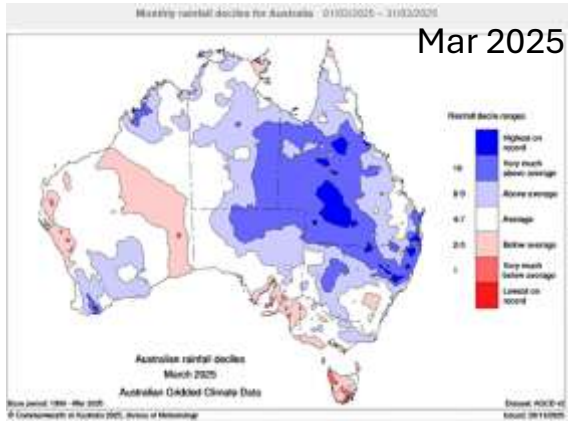


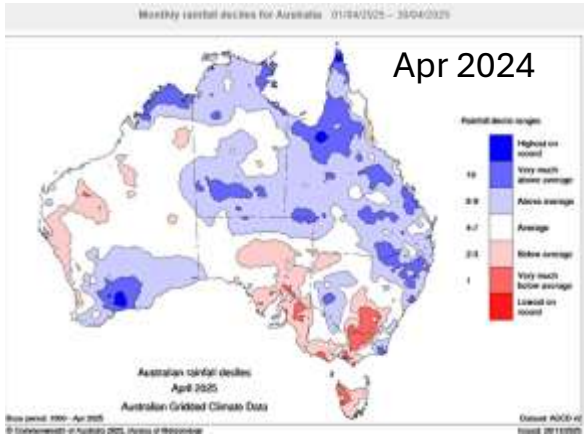
Monthly Rainfall

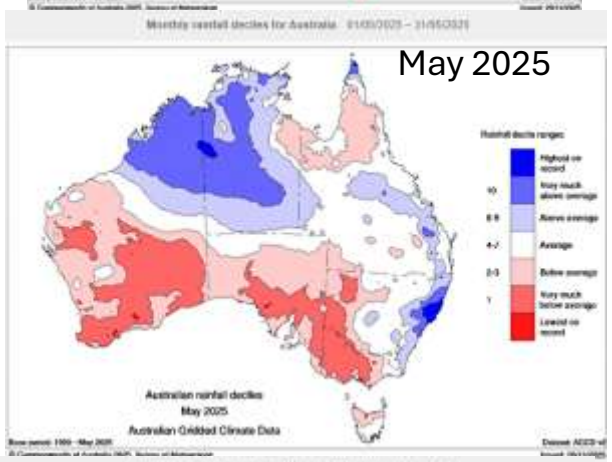


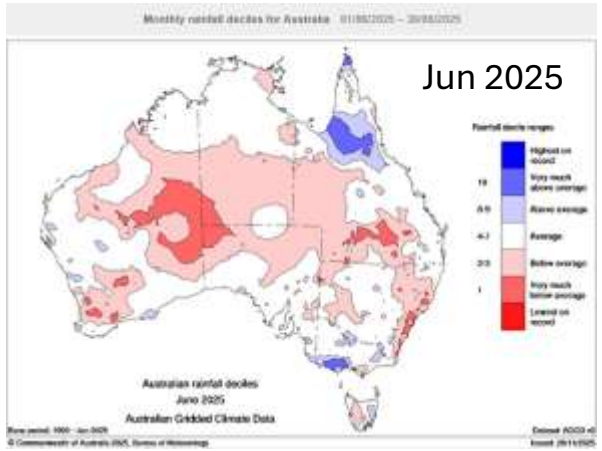


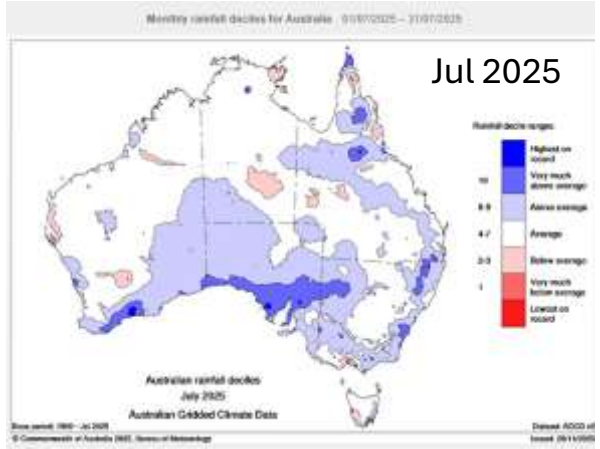


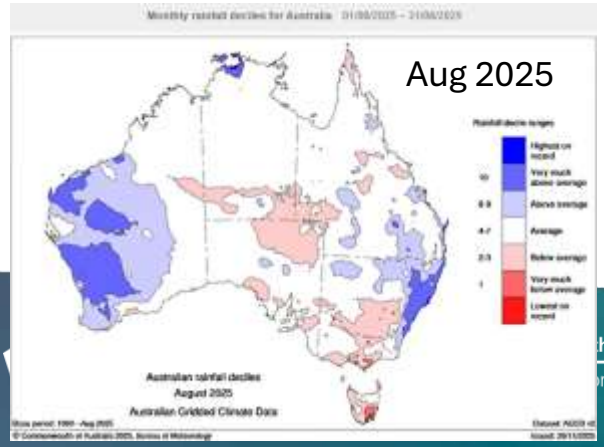


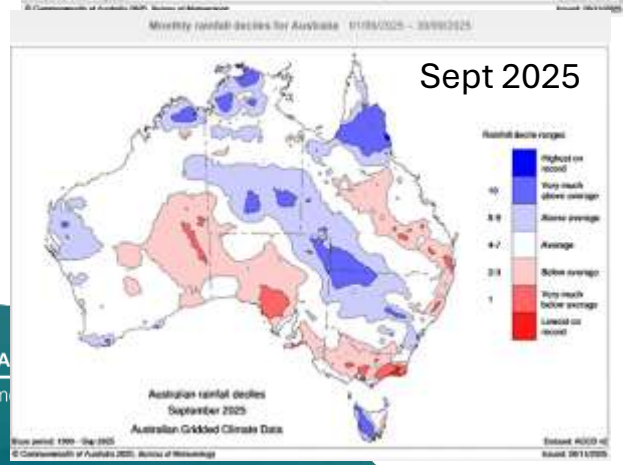


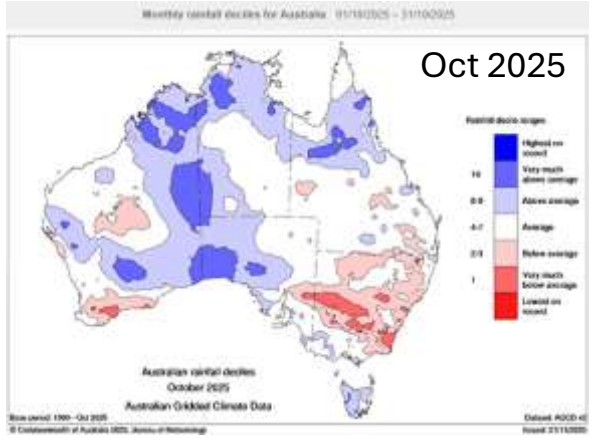


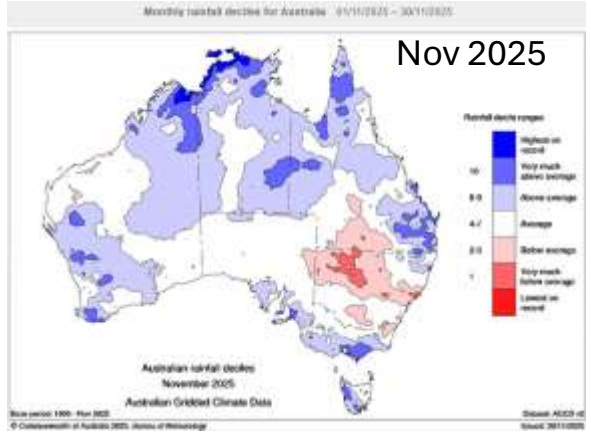






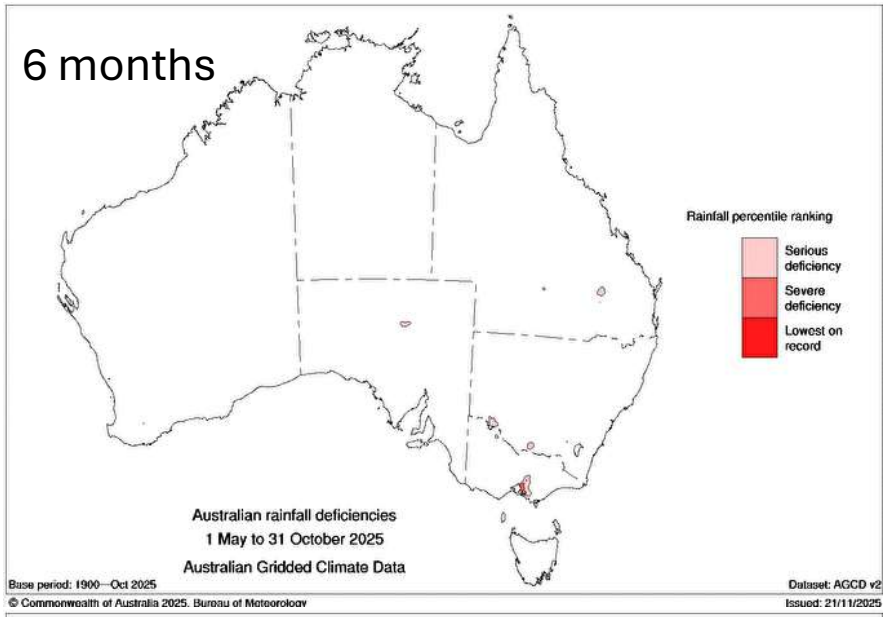




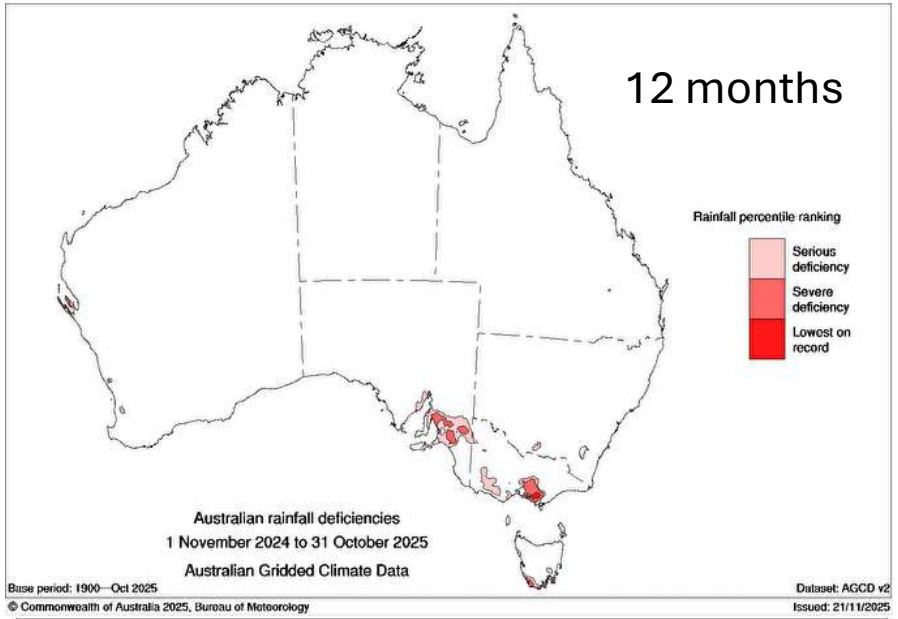


2025 Rainfall deficiencies (drought)

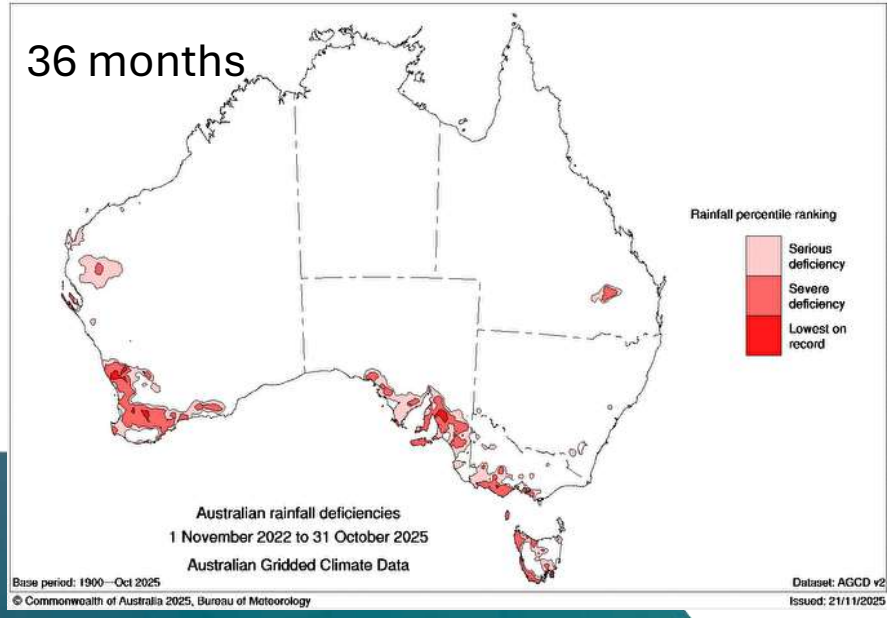
6 months



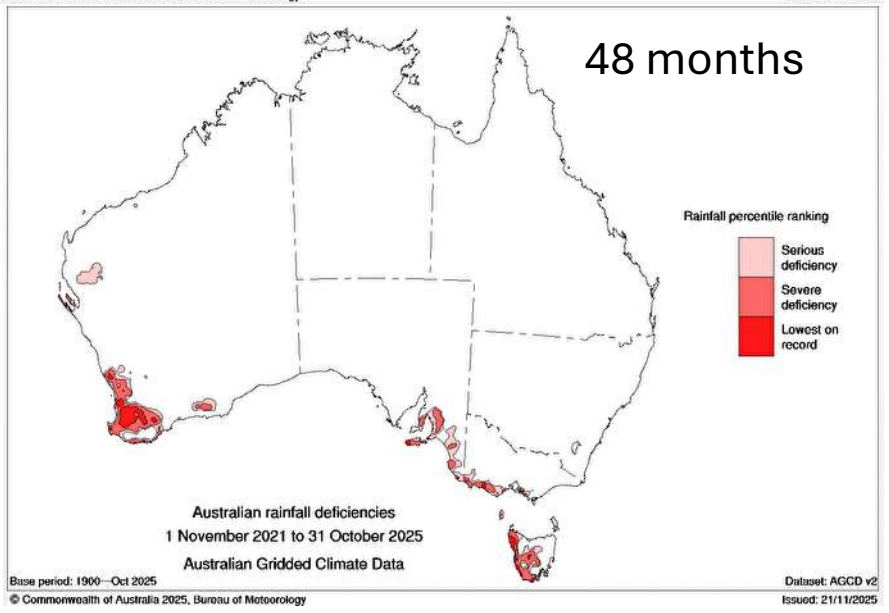
12 months



36 months



48 months



SOUTH AUSTRALIA

Long-range forecast overview

Issued: 4 December 2025

The long-range forecast for December to February shows:

- **Rainfall** is likely to be below average for large areas of Australia and above average in parts of eastern and far northern Queensland.
- **Daytime temperatures** are likely to be above average across most of Australia.
- **Overnight temperatures** are likely to be above average across most of Australia.

https://www.youtube.com/watch?v=f5mVuwik4go&list=PLbKuJrA7Vp7naJL31deES8QAV5E0q6U_H&index=1

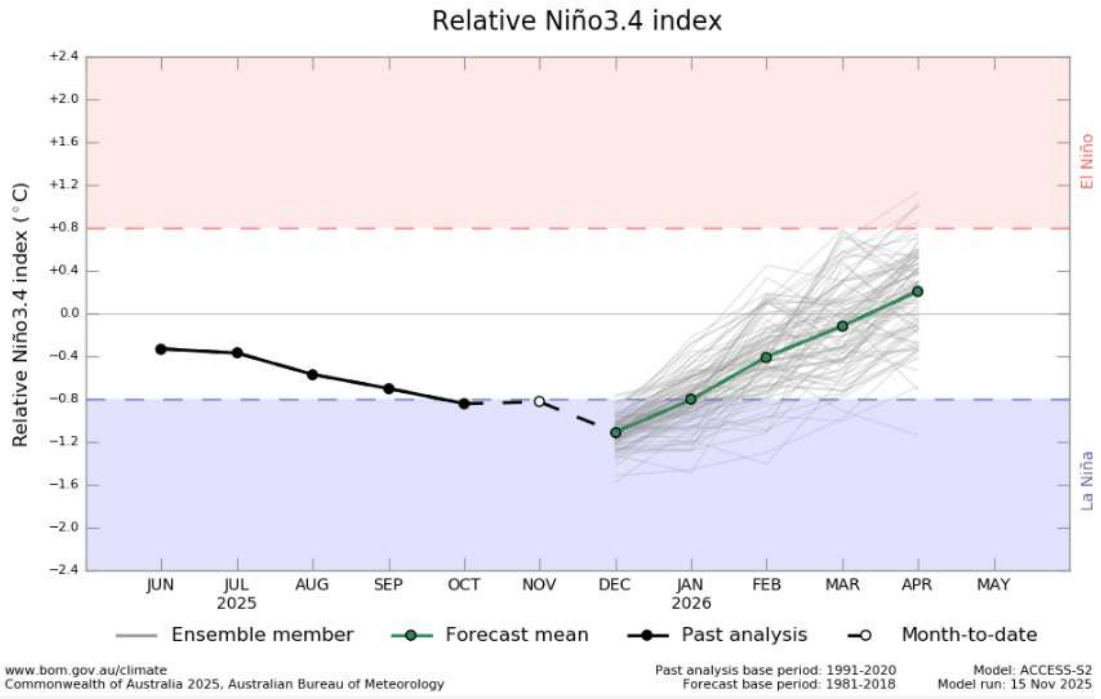
Click here to watch the Bureau of Meteorology's Summer 2025 Climate and Water long-range forecast on YouTube.

Current climate indicators

https://www.bom.gov.au/climate/outlooks/#/overview/influences

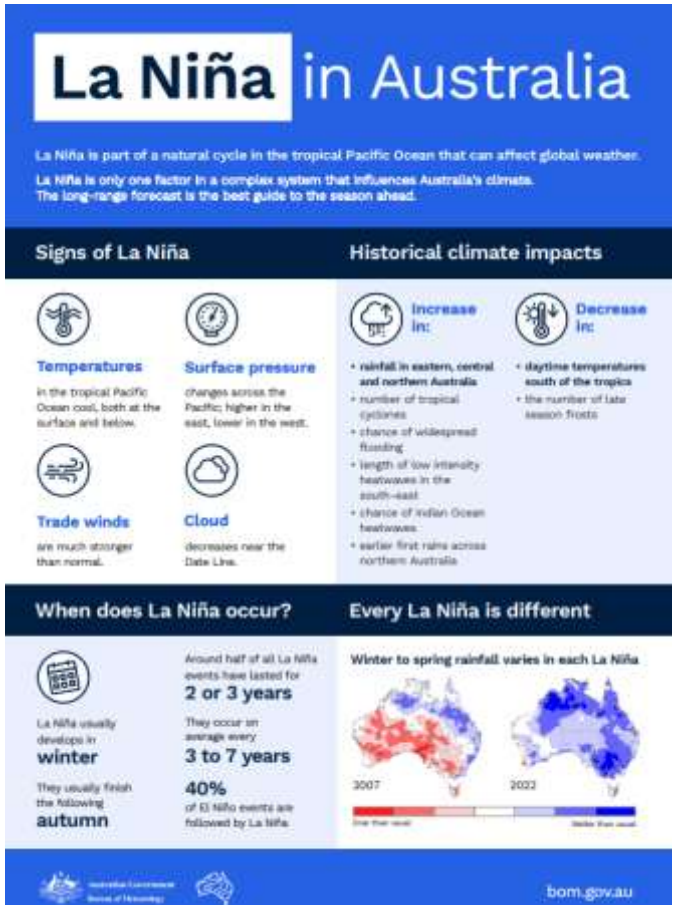
- Since July 2024, sea surface temperatures (SSTs) in the Australian region have been the warmest or second warmest on record for each respective month. Similarly, global SSTs remain substantially above average, with October 2025 the third warmest on record.
- SSTs for the week ending 30 November 2025 were warmer than average to the north-east and south-west of Australia, particularly in the Coral Sea and along much of the New South Wales and Queensland coasts. SSTs were cooler than average to the south-east and north of Australia.
- Forecasts for December to February show warmer-than-average SSTs are likely across much of the Australian region, especially in the east. Warmer oceans can provide increased moisture and energy, that can enhance the severity of storms, cyclones and rain systems.
- La Niña is underway. Observations in the tropical Pacific Ocean have been consistent with La Niña conditions since early October.
- The Bureau's model currently predicts that tropical Pacific Ocean temperatures are likely to remain at La Niña levels until early 2026 before returning to neutral. This timing aligns with most international models assessed.
- The negative Indian Ocean Dipole (IOD) event has been weakening steadily since early November and is near its end. The Bureau's model predicts a return to a neutral IOD during December, which is consistent with most international models.
- The Southern Annular Mode (SAM) index is negative, as of 29 November. Forecasts indicate SAM will remain negative until at least mid-December.
- The Madden-Julian Oscillation is likely to track across the Western Pacific at moderate to strong strength in the coming week, before weakening as it moves into the tropical Americas.
- The combination of these factors, including the state of SAM, MJO and SST patterns in our region, is likely contributing to the widespread dry signal across much of Australia during summer, particularly during December.

Southern Oscillation (ENSO)

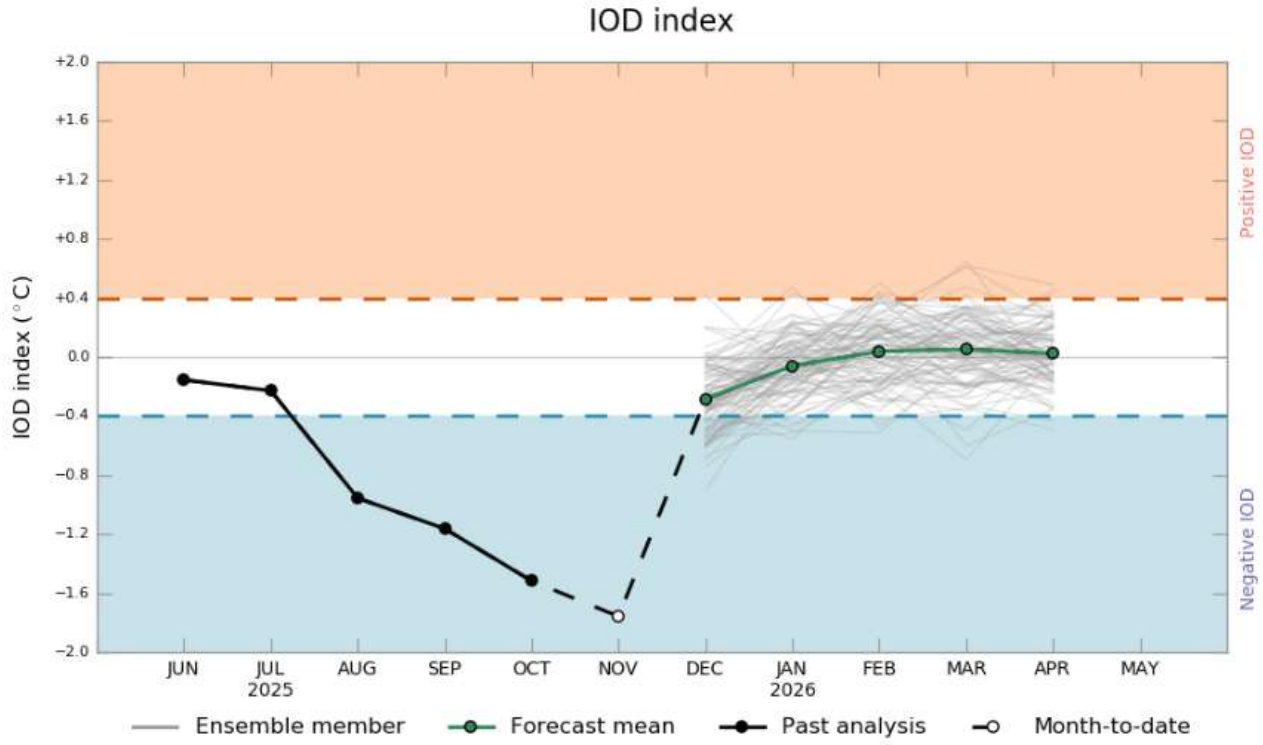


Relative Niño3.4 probabilities

Month	Dec 2025	Jan 2026	Feb 2026	Mar 2026	Apr 2026
R-Niño3.4	−1.1 °C	−0.8 °C	−0.4 °C	−0.1 °C	0.2 °C
below −0.8 °C	94.9%	44.4%	10.1%	3.0%	1.0%
neutral	5.1%	55.6%	89.9%	94.9%	91.9%
above 0.8 °C	0%	0%	0%	2.0%	7.1%



Indian Ocean Dipole



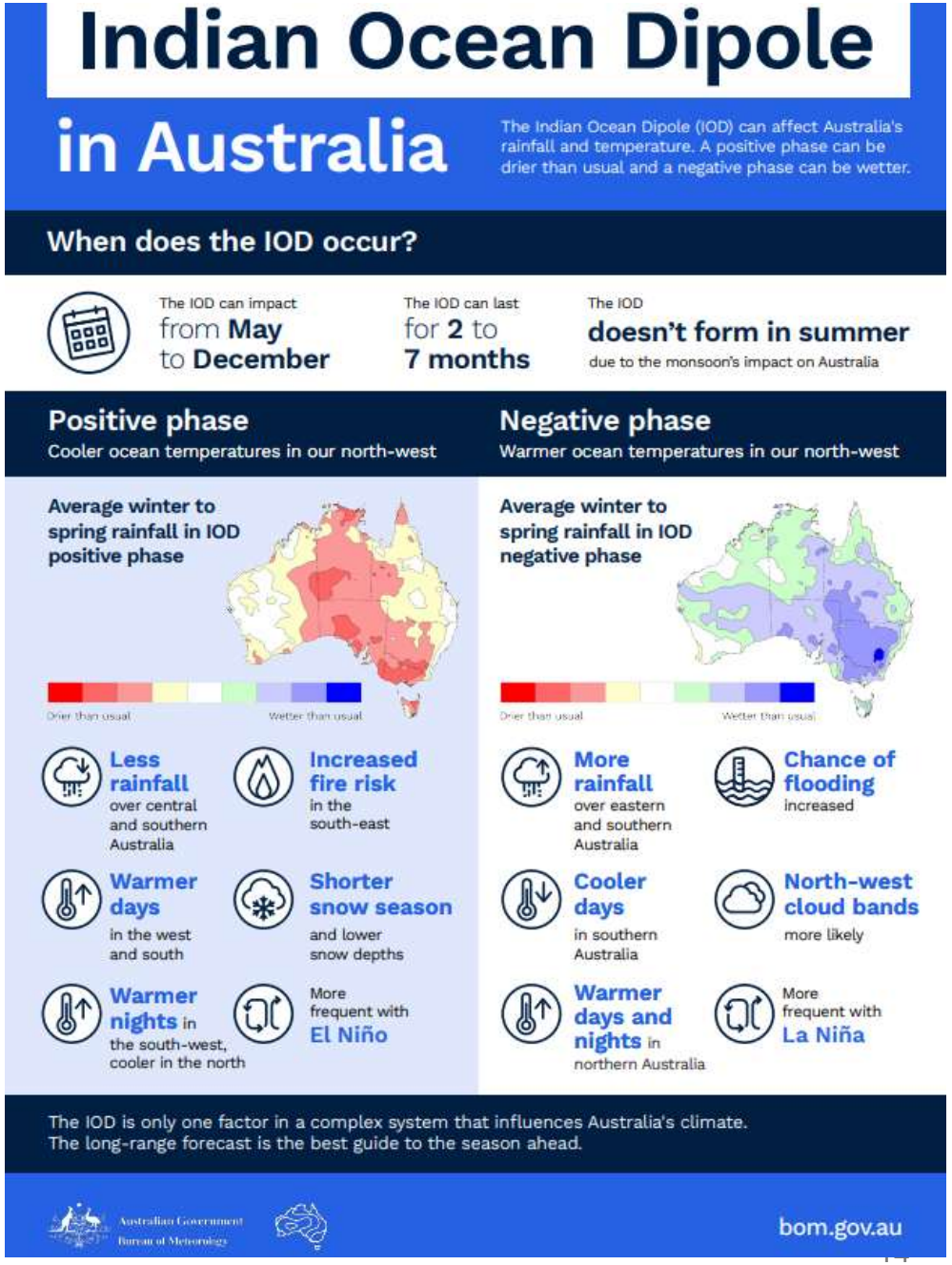
www.bom.gov.au/climate
Commonwealth of Australia 2025, Australian Bureau of Meteorology

Past analysis base period: 1991-2020
Forecast base period: 1981-2018

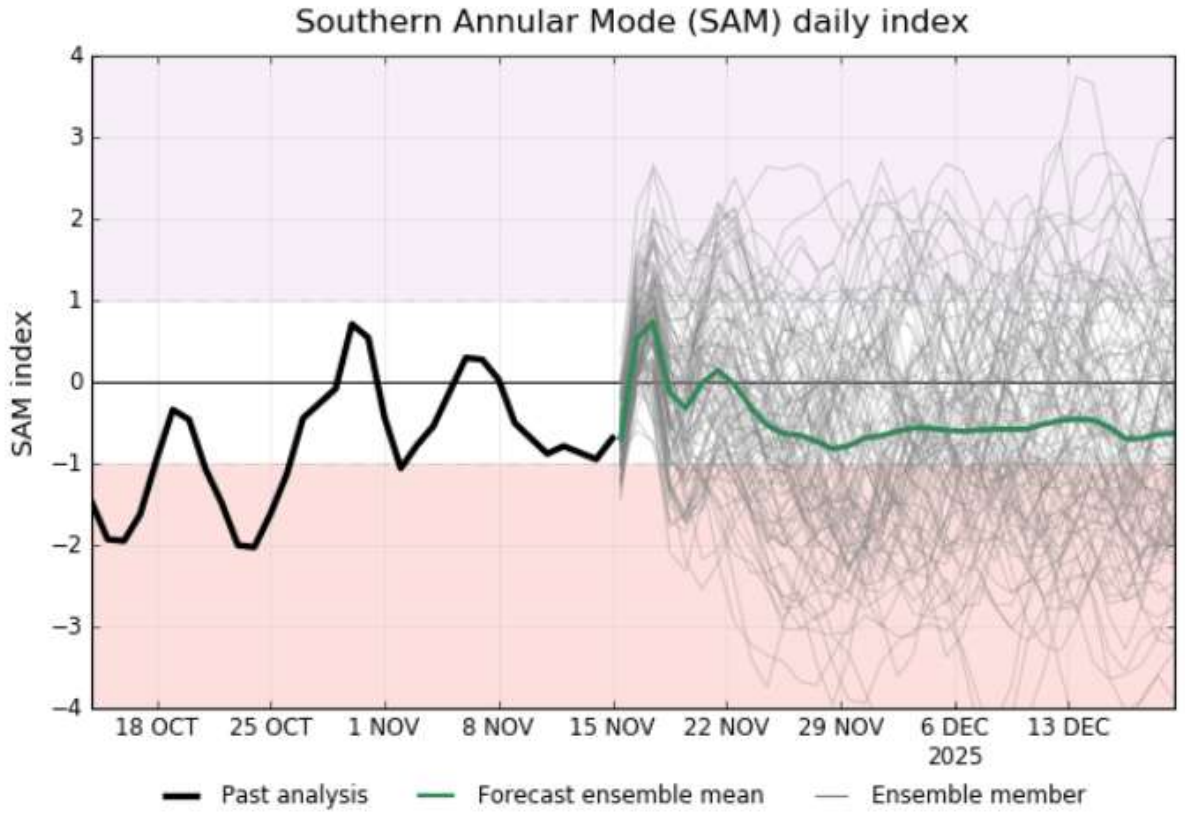
Model: ACCESS-S2
Model run: 15 Nov 2025

IOD probabilities

Month	Dec 2025	Jan 2026	Feb 2026	Mar 2026	Apr 2026
IOD	**−0.3 °C**	**−0.1 °C**	**0 °C**	**0.1 °C**	**0 °C**
below −0.4 °C	25.3%	5.1%	2.0%	3.0%	1.0%
neutral	73.7%	92.9%	87.9%	90.9%	94.9%
above 0.4 °C	1.0%	2.0%	10.1%	6.1%	4.0%



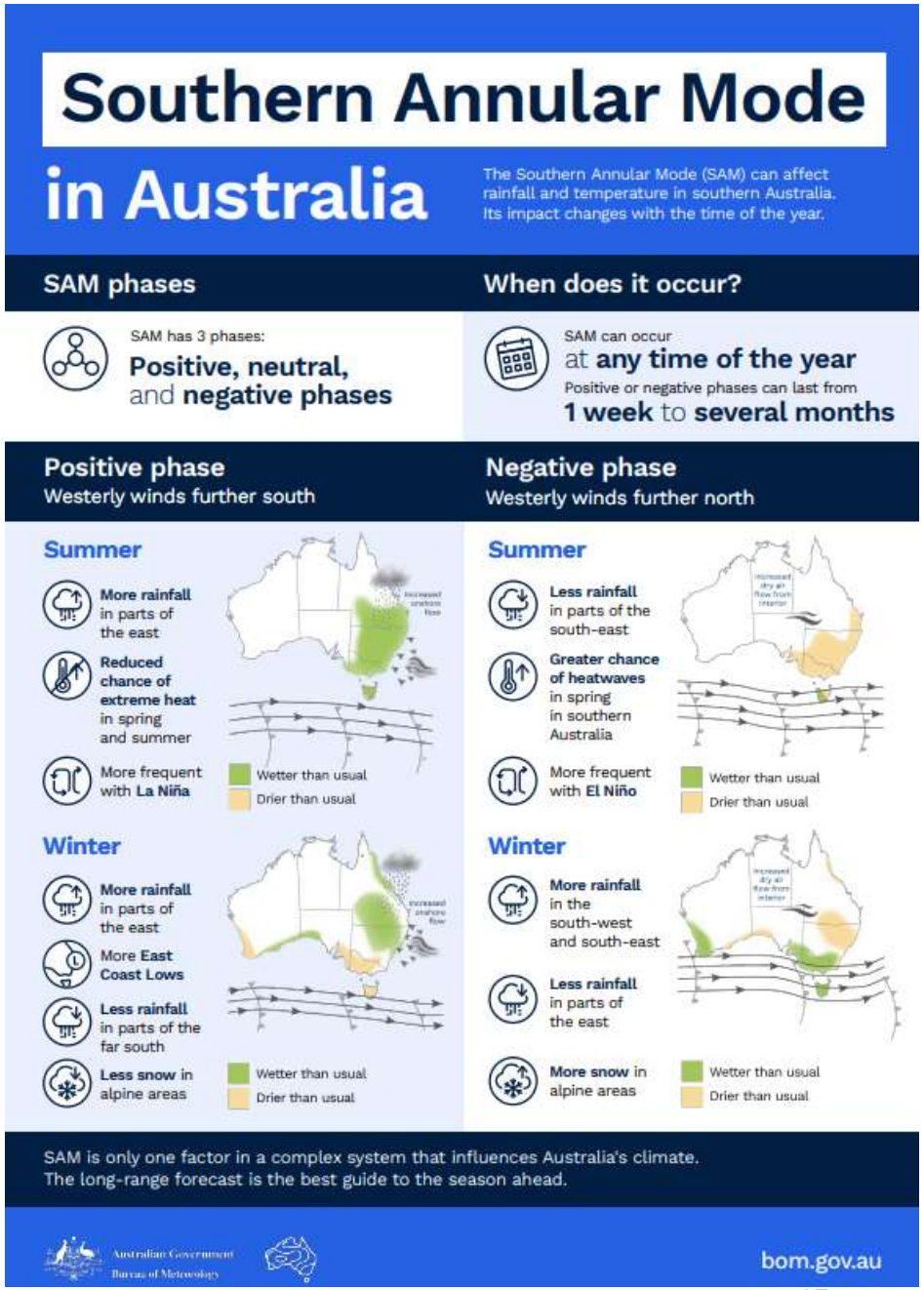
Southern Annular Mode



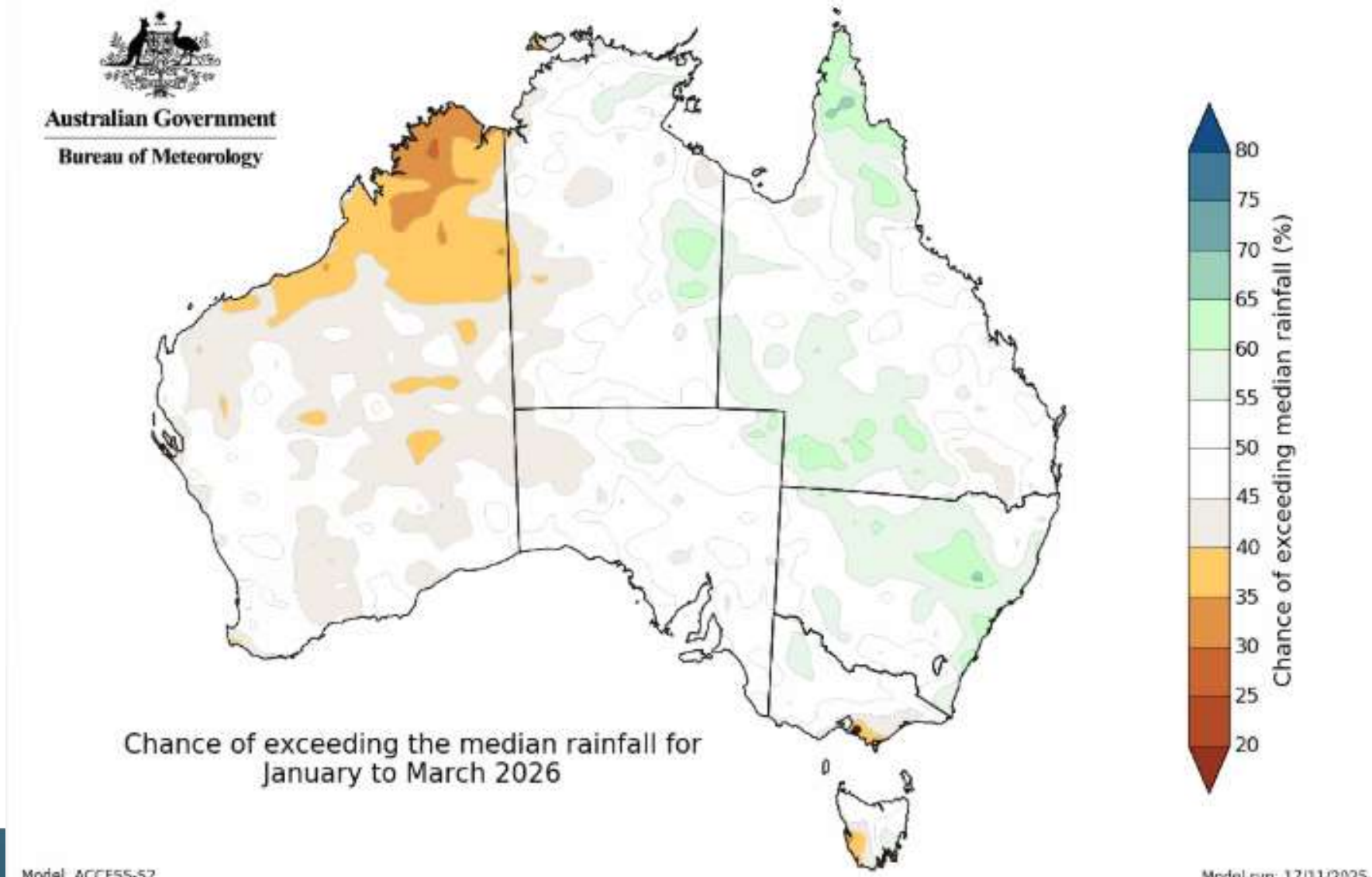
www.bom.gov.au/climate
Commonwealth of Australia 2025, Australian Bureau of Meteorology

Model run: 15 Nov 2025

Model: ACCESS-S2
Base period 1981-2018



Forecast rainfall



Rainfall summary

www.bom.gov.au/climate/outlooks/#/rainfall/summary

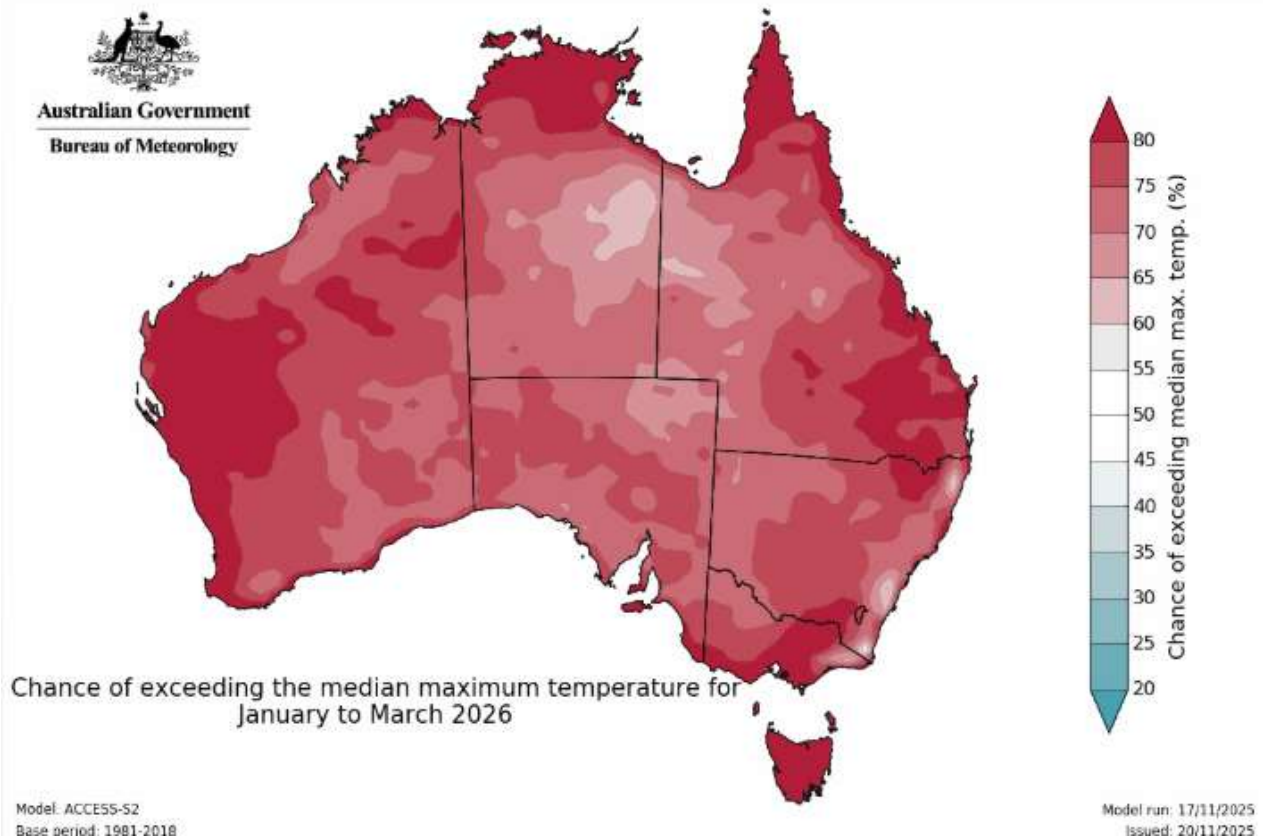
Rainfall is likely to be below average for large areas Australia; above average in parts of eastern and far northern Queensland

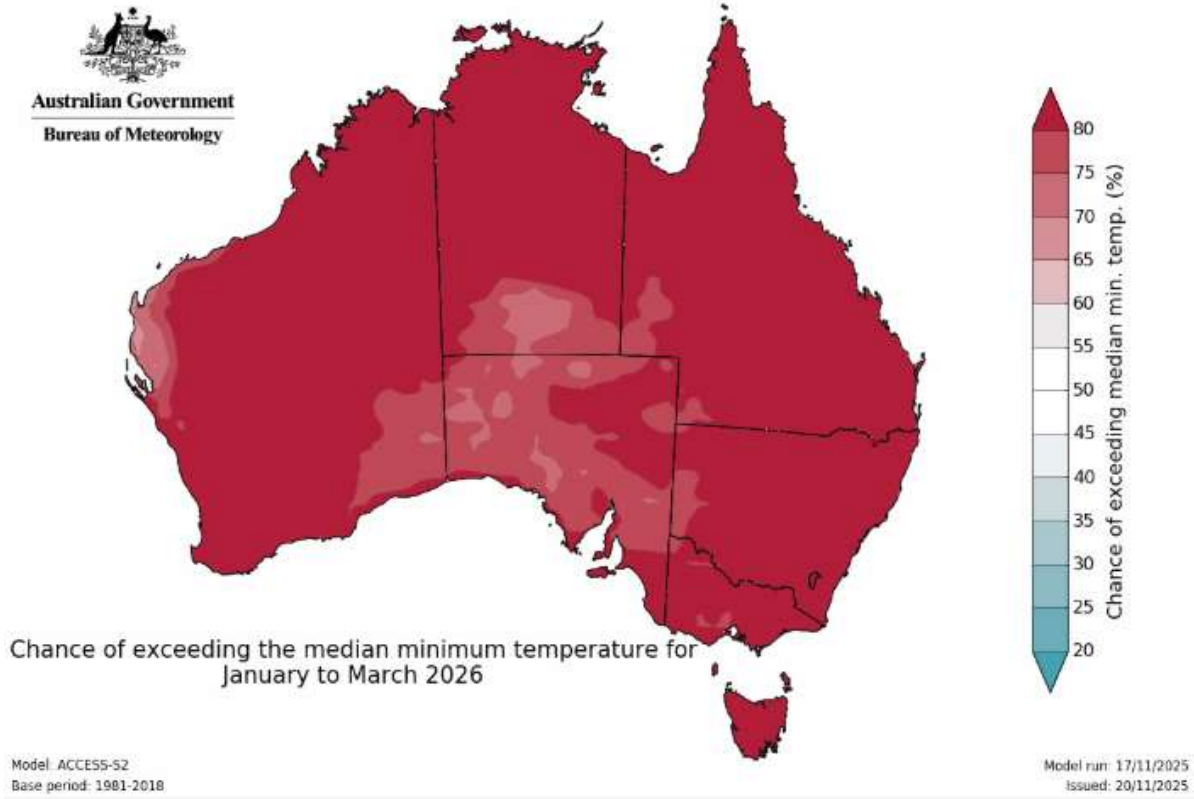
December to February

- Rainfall is likely to be below average (60 to 80% chance) for parts of Western Australia, much of the Northern Territory, South Australia and Victoria, inland Queensland and New South Wales, and north-west Tasmania, with the highest chances of drier conditions in south-west Queensland.
- For much of Australia's far east, there is no clear signal in the rainfall forecast, meaning roughly equal chances of above or below average rainfall over the three months to February. Above average rainfall is slightly favoured (60 to 70% chance) for parts of Cape York Peninsula and eastern Queensland.
- Chances of above average rainfall have generally decreased over recent forecasts, with a dry signal now more pronounced for the month of December across much of the country.

Forecast temperature

Chance of exceeding median maximum and minimum temperatures - January to March 2026





Temperature summary

www.bom.gov.au/climate/outlooks/#/temperature/summary

Warmer than average days and nights likely across most of Australia

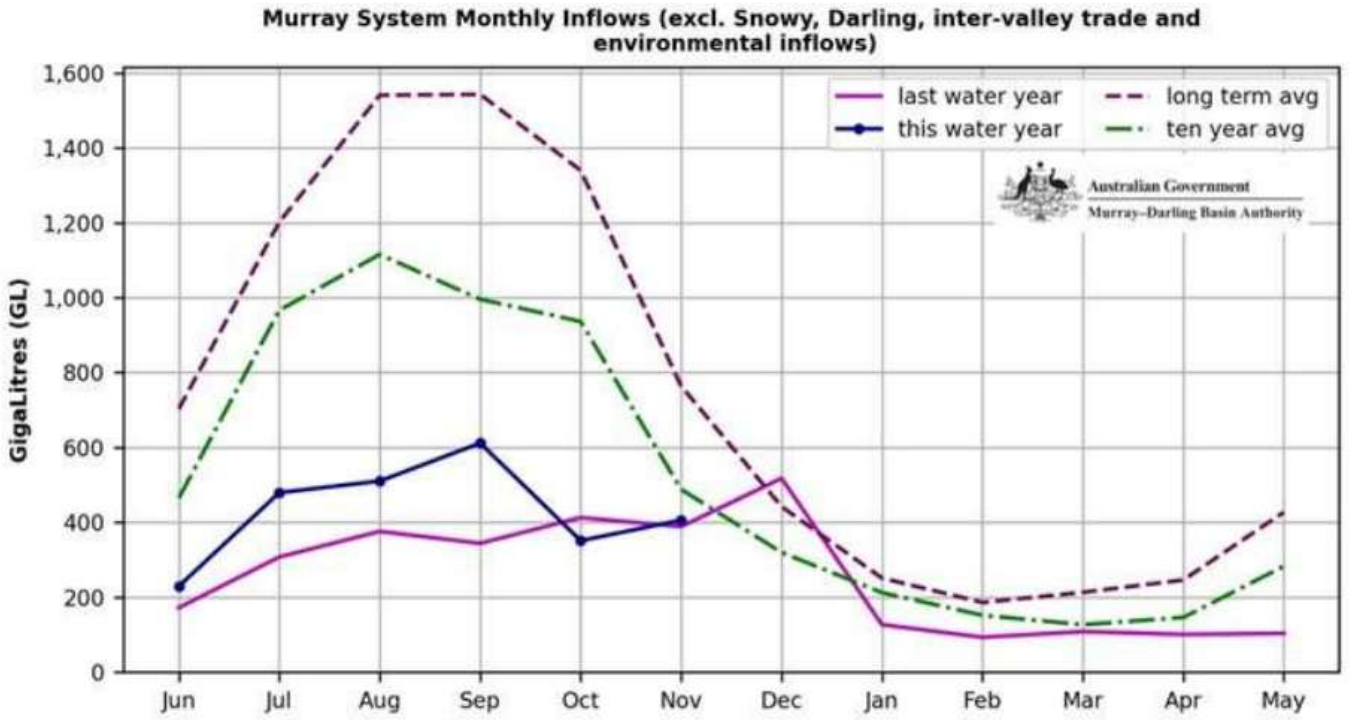
Issued: 4 December 2025

December to February

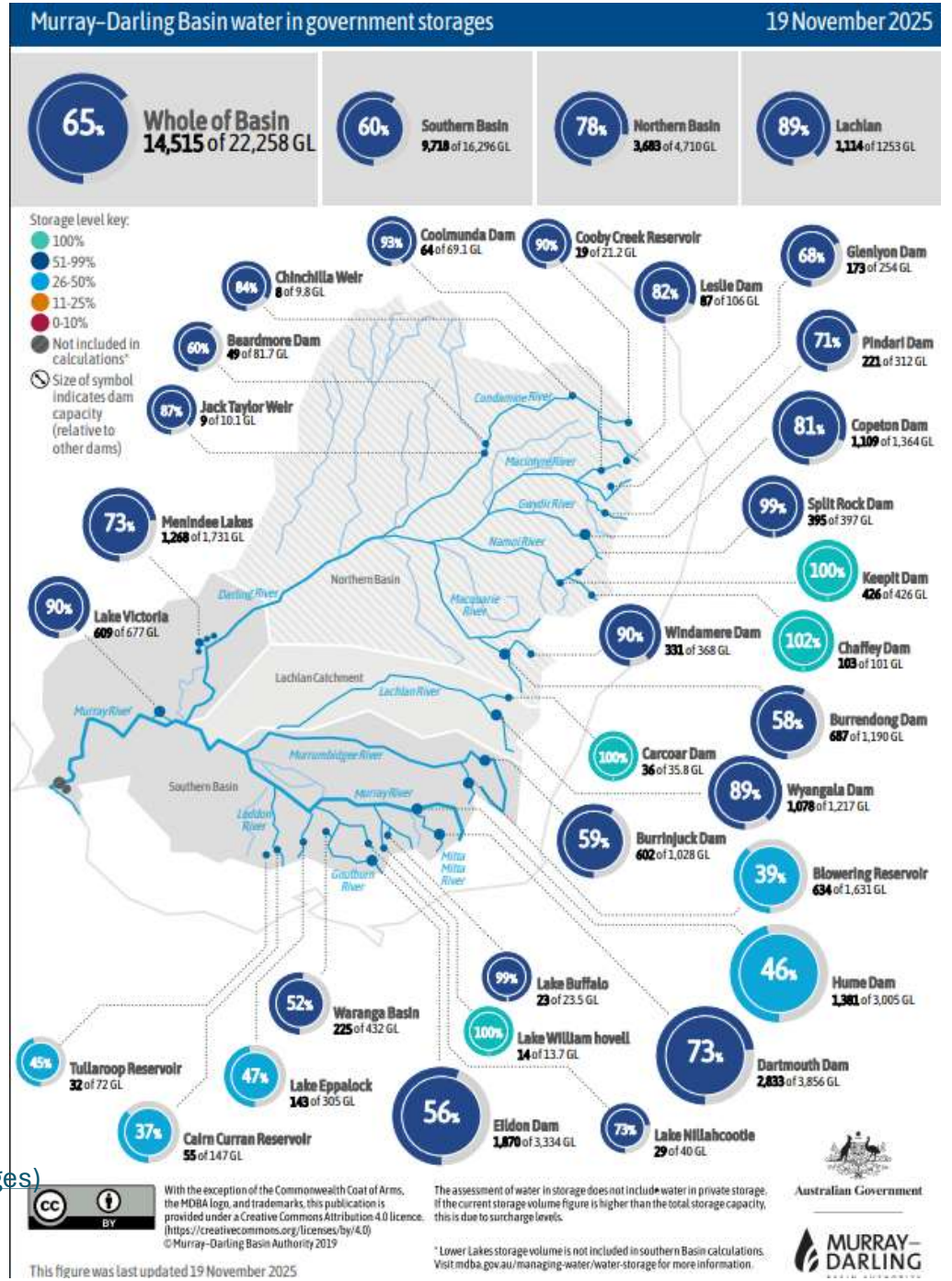
- Maximum temperatures are likely to be above average (60% to over 80% chance) across most of Australia.
- Some areas have an increased chance of unusually high maximum temperatures[1] (over 50% chance) including parts of western and north-west Australia, western and central Victoria and central southern New South Wales.
- Minimum temperatures are likely to be above average (60% to over 80% chance) across most of Australia.
- There is an increased chance of unusually high minimum temperatures[1] (over 50% chance) across much of western and far northern Australia and parts of eastern Australia, with the strongest chances in the far tropical north (over 70% chance).

[1]Unusually high maximum and minimum temperatures are those in the warmest 20% of December to February days and nights, respectively, between 1981 and 2018.

River Murray inflows and storages



River Murray Weekly Report 3 December 2025
Murray-Darling Basin Authority 2024



Murray - Darling Basin Government Storages)

River Murray flow to SA

www.mdba.gov.au

4.7. Flow to South Australia

The full South Australian Entitlement is 1,850 GL (696 GL Dilution and Loss (conveyance) + 1,154 GL Entitlement volume from which South Australia makes allocations). For 2025-26 South Australia have announced 100% allocations.

Average daily flow rates across the South Australian border in the 6 AOO scenarios are shown in Figure 15.

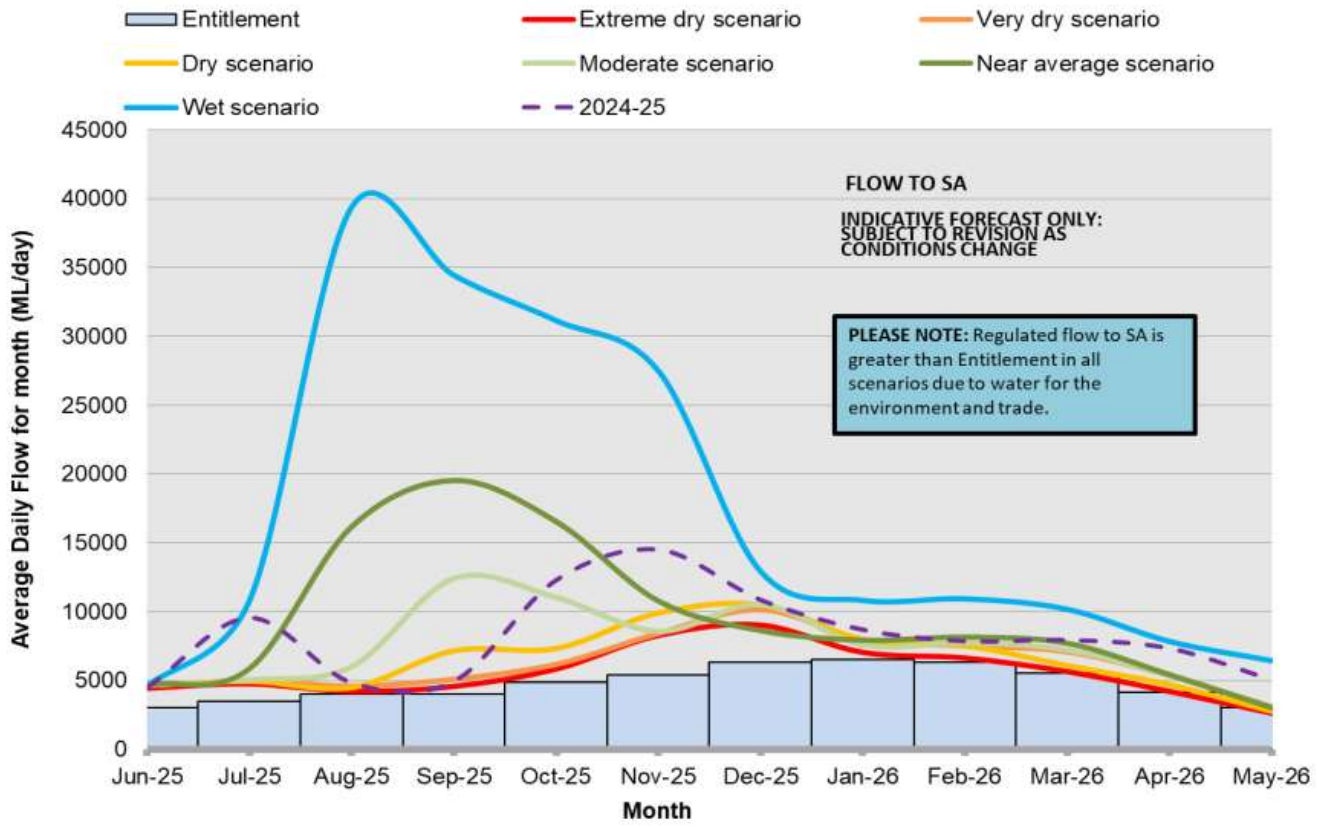
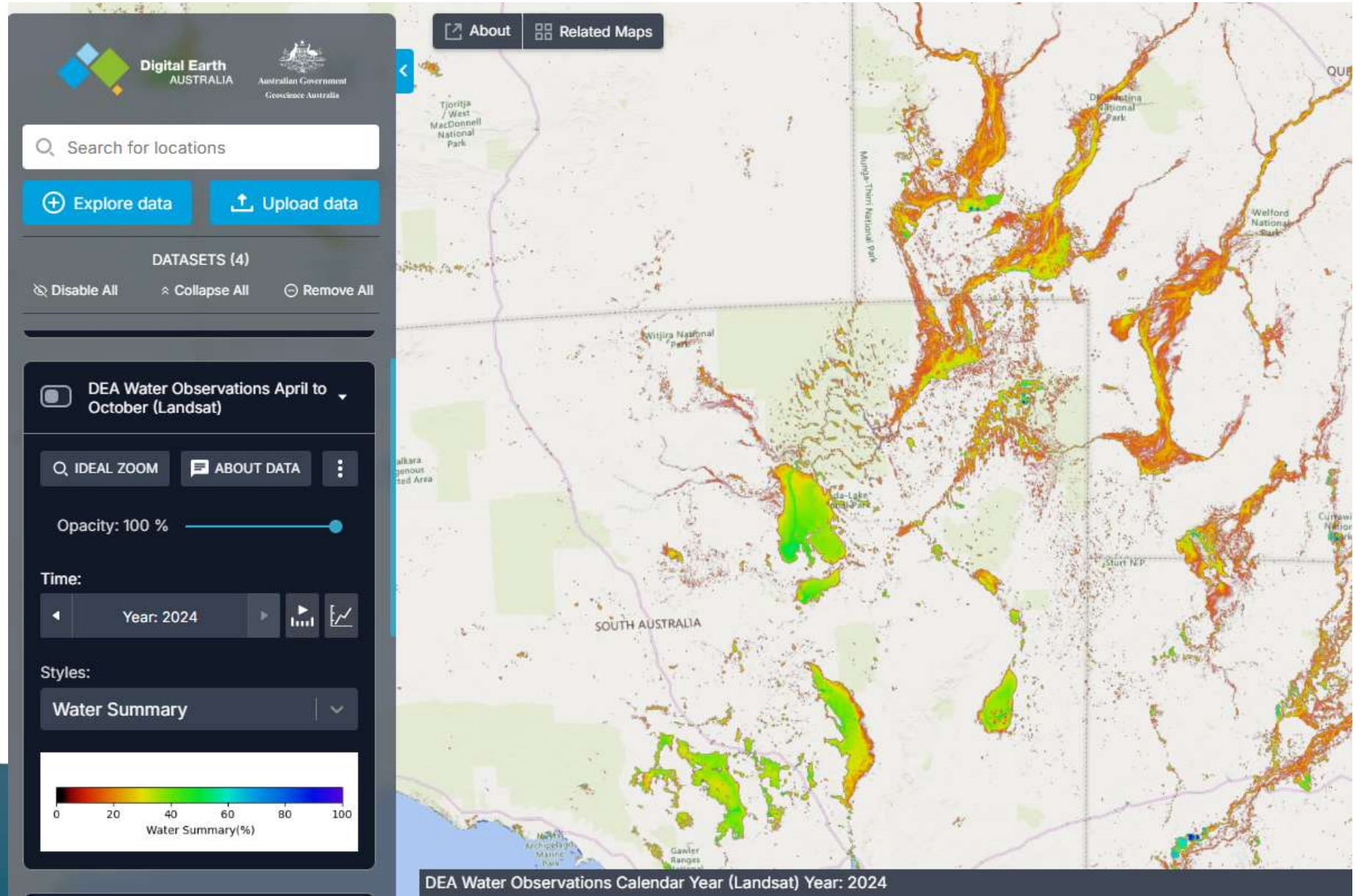


Figure 15: Outlook of flow across the South Australian border for 2025–26

Murray-Darling Basin Authority (2024) River Murray Annual Operating Outlook 1 June 2025 – 31 May 2026 August 2025, MDBA, Canberra

Lake Eyre Basin

maps.dea.ga.gov.au

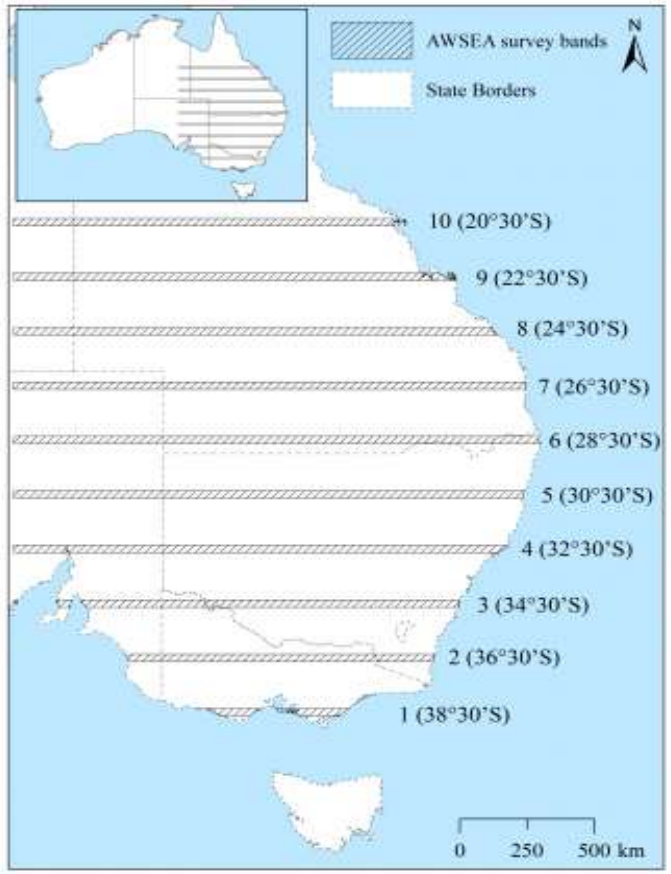


Waterfowl abundance and distribution, and habitat availability

- Eastern Australian Waterbird Survey
- Wetlands and Waterfowl Surveys
- SA Aerial Surveys

Eastern Australian Waterbird Survey (EAWS)

The annual Eastern Australian Waterbird Aerial Survey (EAWS) began in 1983 to monitor annual continental scale changes in the distribution and abundance of waterbirds and their breeding, as well as change in the extent of wetland habitat over time. It tracks trends in more than 50 species of waterbirds.



Key to wetlands from W-E, by band

10 Lake Moondarra, Cloncurry River, Flinders River, Campaspe R, Burdekin R

9 Georgina R, Eyre Ck, Hamilton R, Diamantina R, Lake Galilee, Styx R

8 Mumbleberry-Torquinnie Lakes, Eyre Ck, Diamantina R, Thomson R, Barcoo R, various small coastal wetlands

7 Goyder Lagoon, Lake Yamma Yamma, Cooper Ck, Bulloo R, Paroo R, Warrego R

6 Lake Eyre, Lake Hope, Bulloo R, Paroo R, Warrego R, Balonne R,

5 Lake Frome, Paroo O'flow, Darling R, Macquarie Marshes

4 Menindee Lakes, Talywalka Lakes, Myall Lakes

3 Murray River Lakes, Lowbidgee wetlands

2 Coorong, Cooper + Mokoan Lakes, Cooma-Monaro

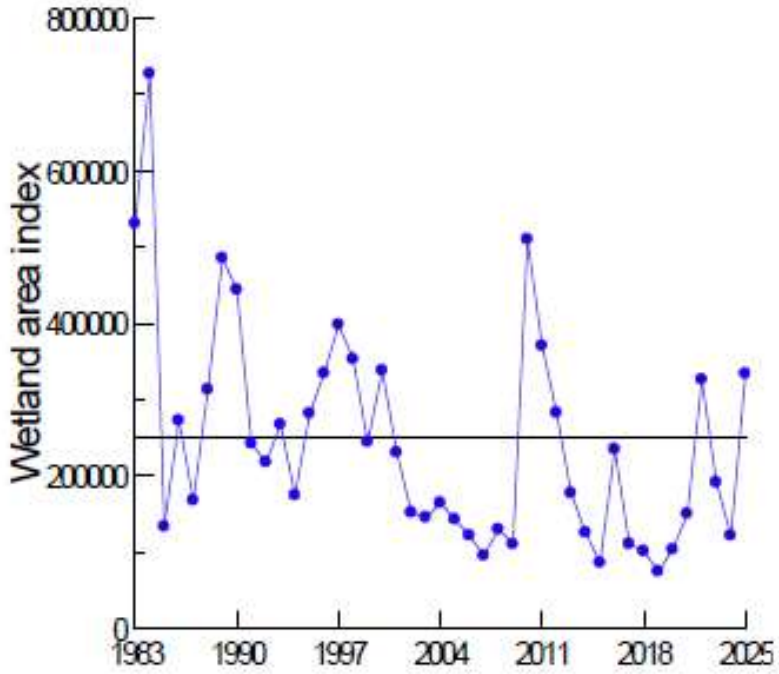
1 Curdies Inlet, Jack Smith Lake

Porter J.L., Kingsford R.T., Francis R., Brandis K, Ahern, A., Tidou Y. and Simpson D. (2024) *Eastern Australian Waterbird Aerial Survey – October 2024 Annual Summary Report*

EAWS – Wetland index & distribution

Increased considerably from the previous year, well above the long-term average. Most of the wetland habitat was located in Survey bands 6 (43%) and 7 (17%). Four wetlands (Kati Thanda-Lake Eyre, Cooper Creek, Lake Yamma Yamma and the Diamantina floodplain) created significant habitat (51% total) but supported disproportionately low numbers of waterbirds with around 3.8% of the survey total.

Changes over time in wetland area in the Eastern Australian Waterbird Aerial Survey (1983-2025); horizontal line shows long-term average.



2025 Total wetland area index – 334,325 ha

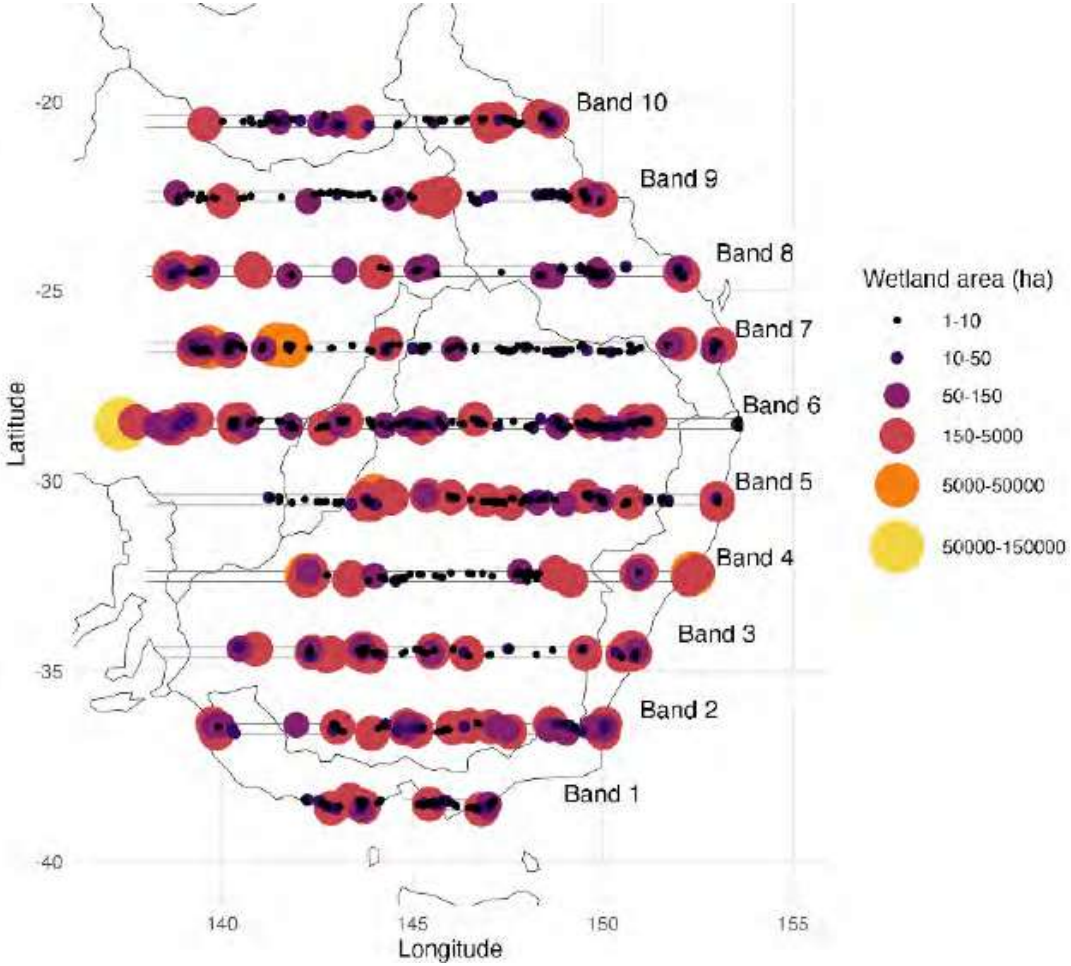
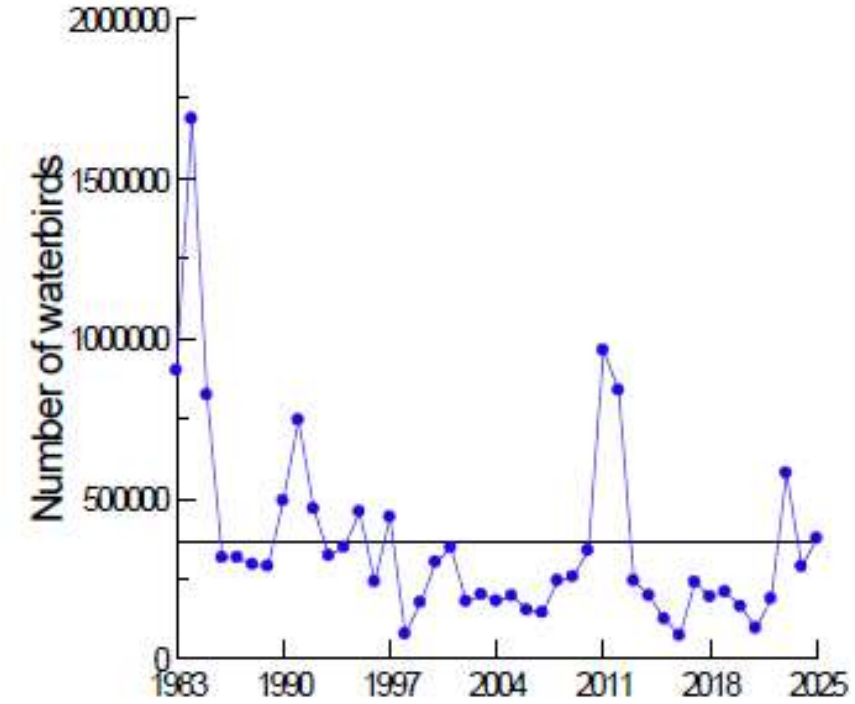


Figure 7. Distribution of wetland area in the 2025 Eastern Australian Waterbird Aerial Survey bands. All surveyed wetlands with surface water present are plotted; dry wetlands are not shown.

EAWS – Waterbird abundance & distribution

- Increased significantly from 2024 to slightly above the long-term average; this was 12th highest total in 43 years.
- Waterbirds were most abundant in survey bands 9 and 8.



Changes over time in total waterbird abundance in the Eastern Australian Waterbird Aerial Survey (1983-2025); horizontal line shows long-term average.

2025 Total abundance index – 375,419

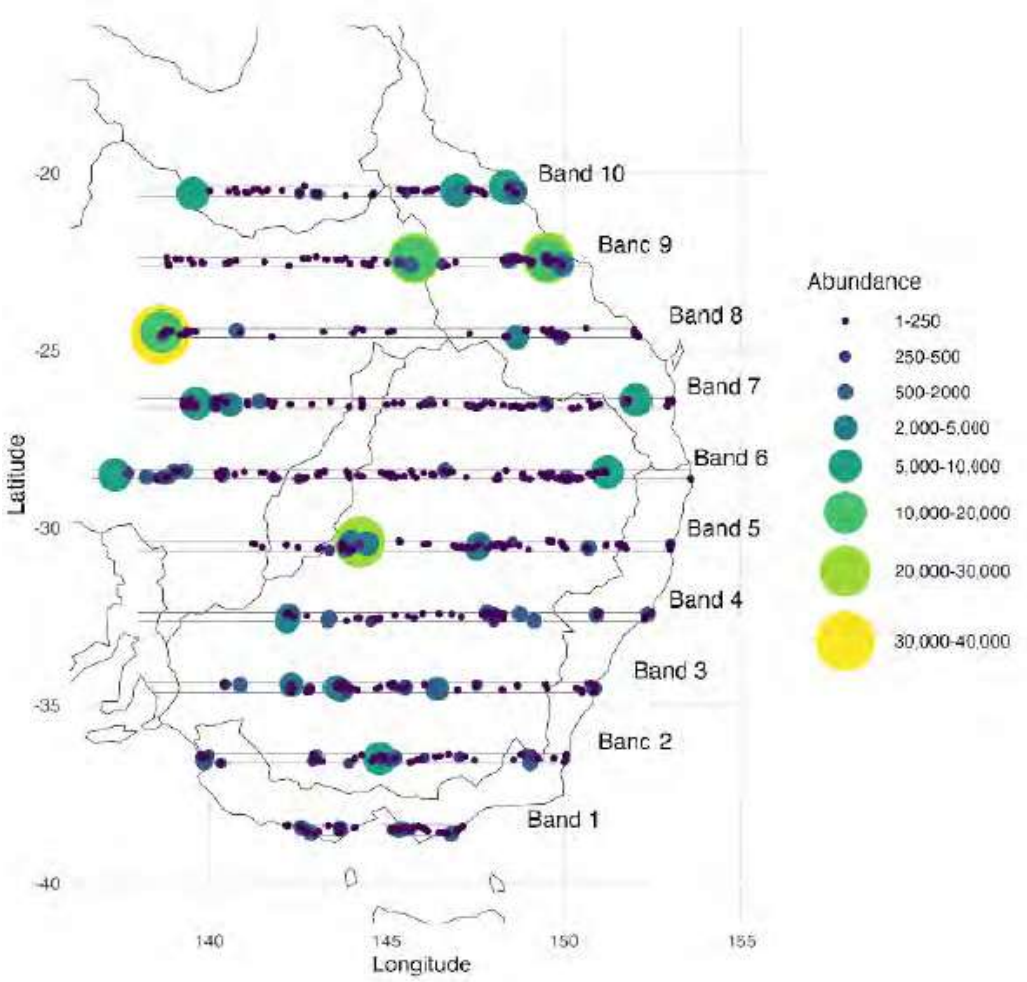
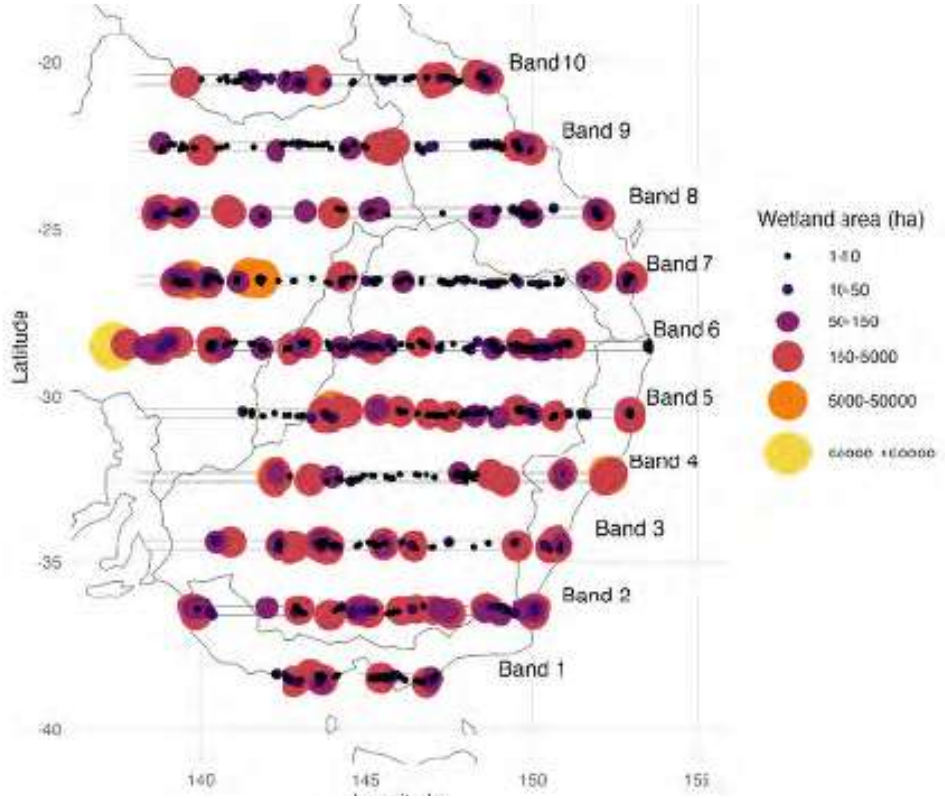
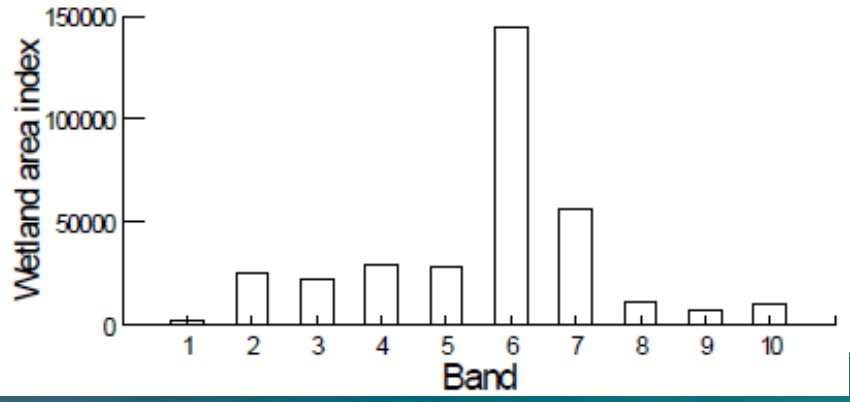


Figure 5. Distribution and abundance of waterbirds in the 2025 Eastern Australian Waterbird Aerial Survey bands. Dry wetlands and those with zero waterbirds not plotted.

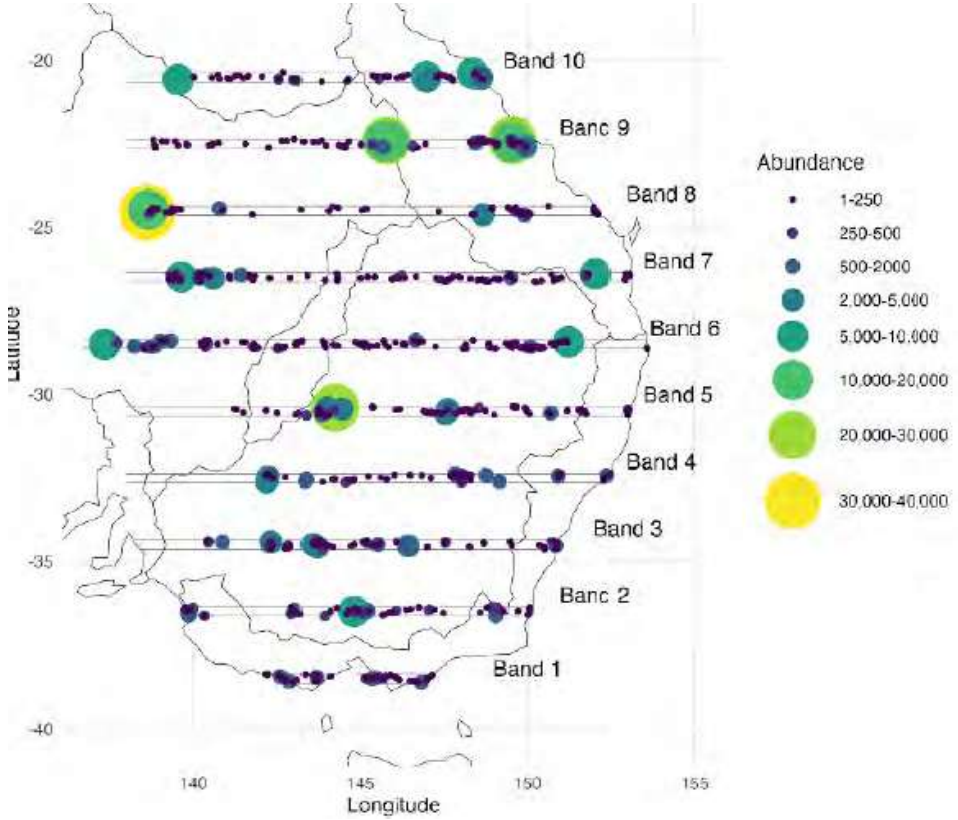
EAWS – Waterbird locations

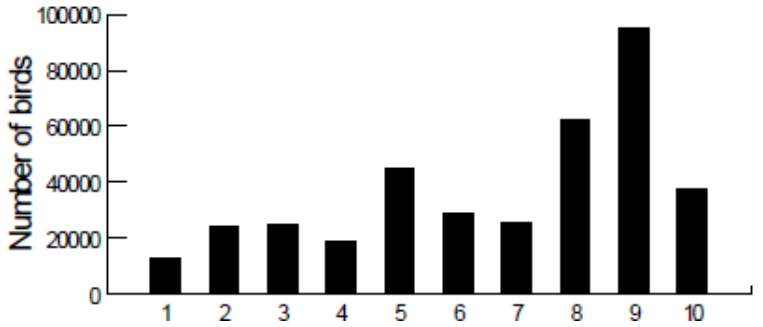
Where the habitat is:



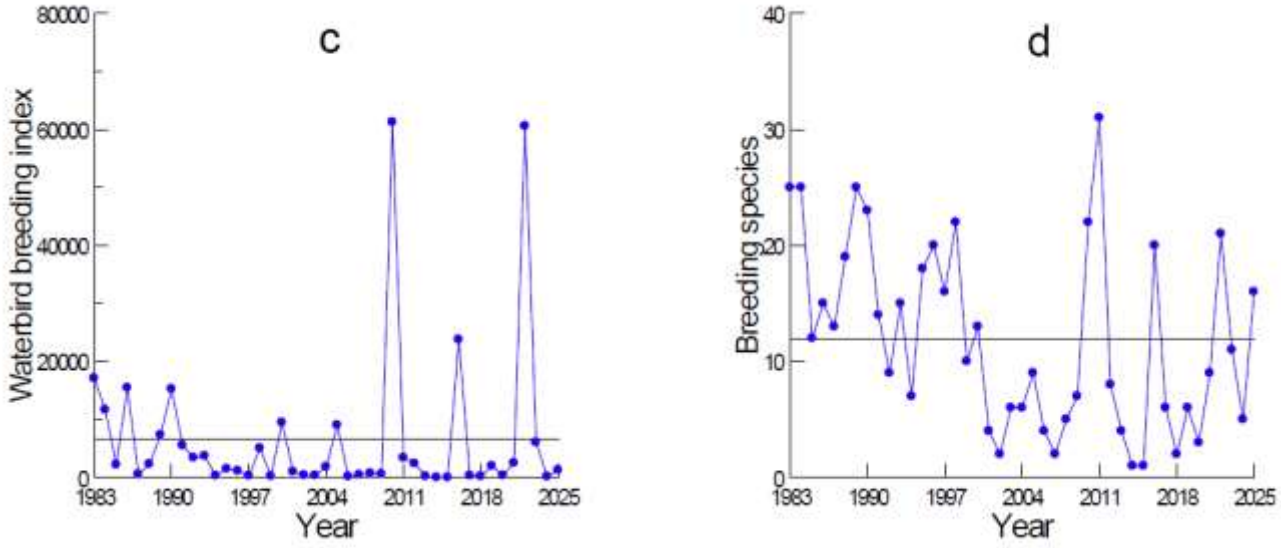


Where the birds are:



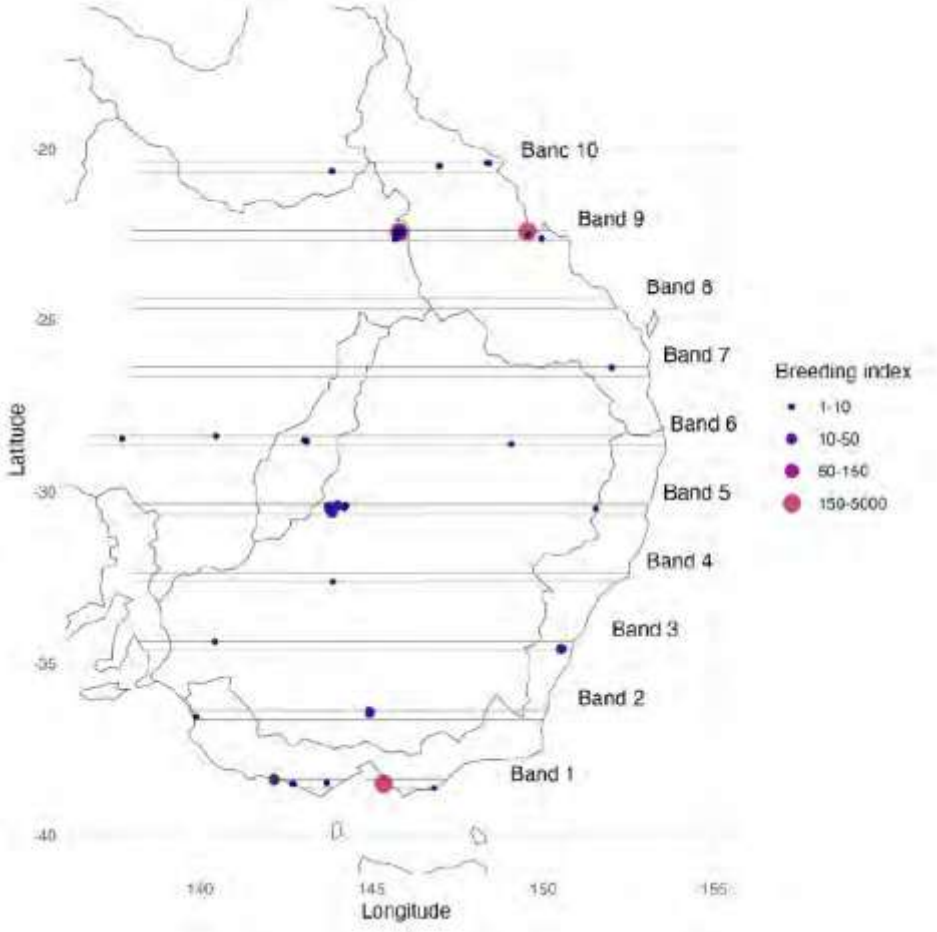


EAWS – Waterbird breeding



Changes over time in c) breeding and d) number of breeding species in the Eastern Australian Waterbird Aerial Survey (1983-2025); horizontal lines show long-term averages.

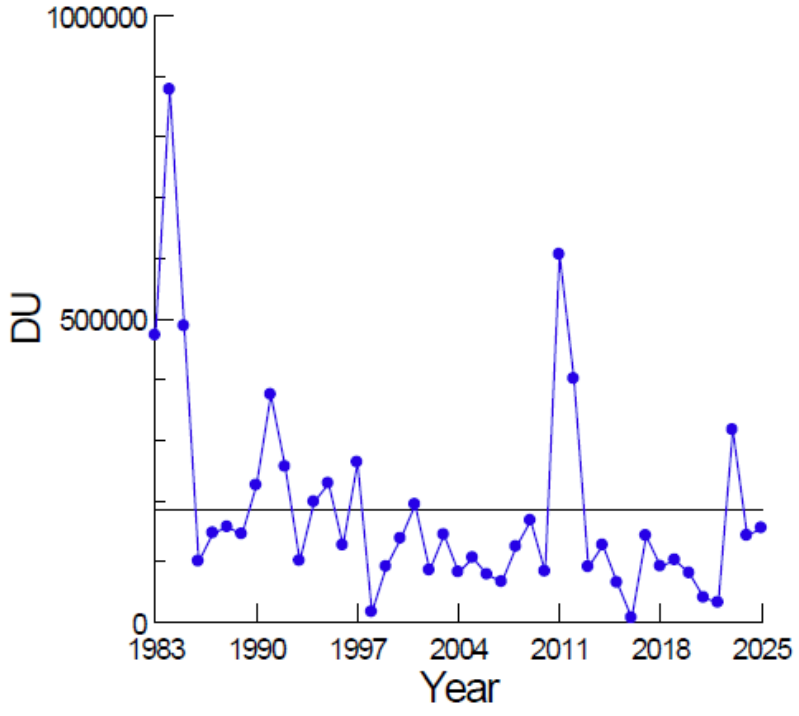
2025 Breeding index – 1,270



Distribution of waterbird breeding in the 2025 Eastern Australian Waterbird Aerial Survey bands. Only wetlands with breeding recorded are plotted.

EAWS –Game Duck

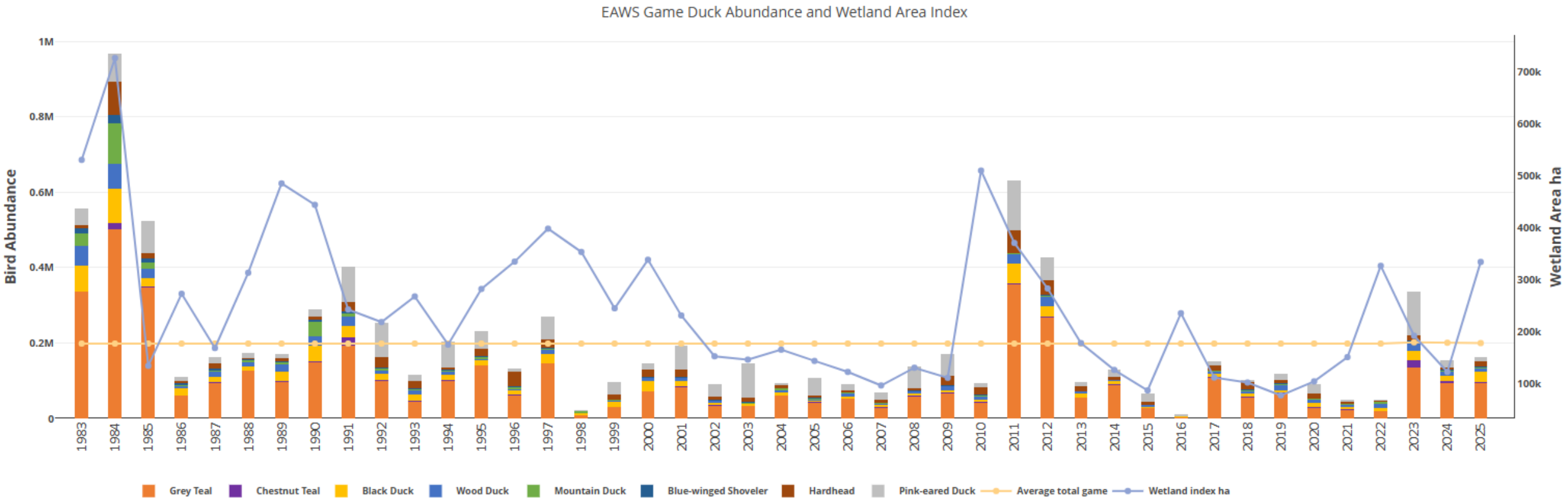
- Australasian Shoveller, Chestnut Teal, Mountain Duck, Pink-eared Duck and Wood Duck had abundances well below their long-term averages
- Hardhead and Grey Teal were close to their long-term averages
- Black Duck was above it's long-term average.



Species	Trend	Variance and significance (all years)	Trend	Variance and significance (1983-84 omitted)
Pacific Black Duck	decline	r^2=0.22, p=0.002	decline	r^2=0.11, p=0.036
Australasian Shoveler	decline	r^2=0.42, p<0.001	decline	r^2=0.34, p<0.001
Chestnut Teal	no trend	r^2=0.01, p=0.465	no trend	r^2=0.001, p=0.816
Grey Teal	decline	r^2=0.22, p=0.002	decline	r^2=0.13, p=0.023
Hardhead	no trend	r^2=0.06, p=0.124	no trend	r^2=0.03, p=0.325
Mountain Duck	decline	r^2=0.31, p<0.001	decline	r^2=0.23, p=0.002
Pink-eared Duck	no trend	r^2=0.06, p=0.111	no trend	r^2=0.06, p=0.114
Australian Wood Duck	decline	r^2=0.12, p=0.026	no trend	r^2=0.03, p=0.298

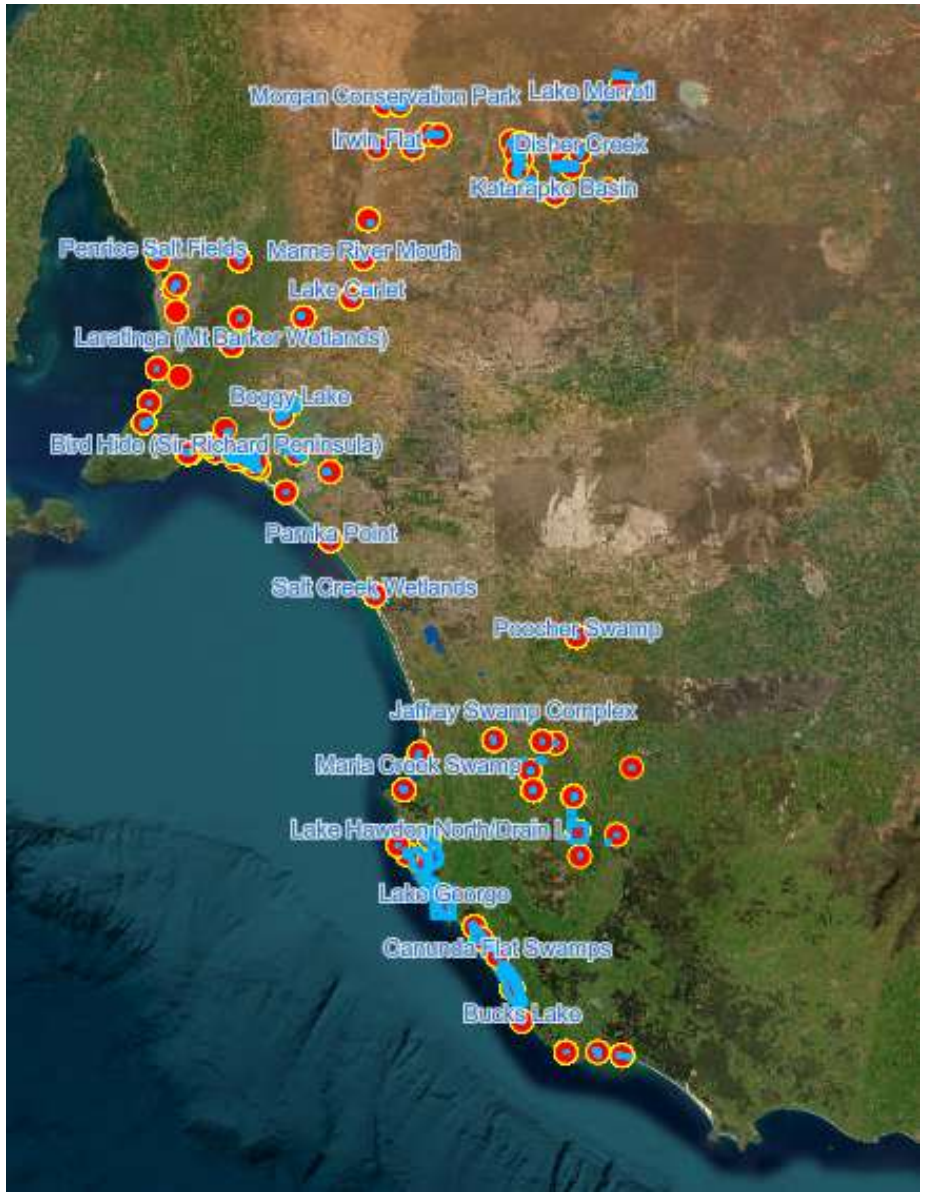
Trends in abundances of game species from the Eastern Australian Waterbird Aerial Survey (1983-2025).

EAWS game duck species composition



SA wetland and waterfowl surveys

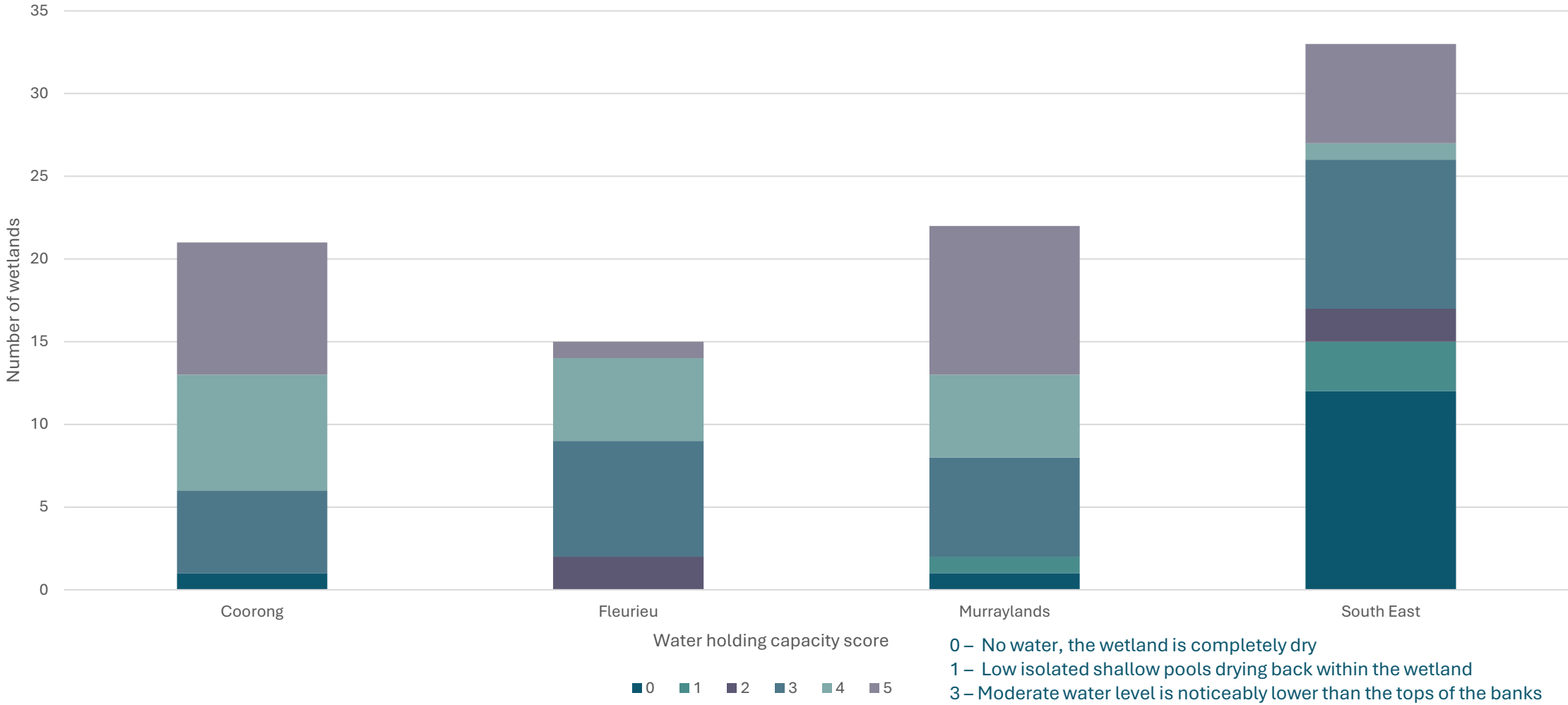
- Annual DEW volunteer-based survey (since 2003)
  - Thanks to all volunteers and DEW who assisted with the 2025 surveys
- Provides snapshot of suite of wetlands
- Indication of trends - not intended as absolute measure
- 91 wetlands surveyed in 2025 (total approx. 100 in register)
  - 125 surveys conducted
  - 132+ hours of survey effort
  - 56,276 ha surveyed
  - 76% wetlands capacity score 3+



SA wetland and waterfowl surveys – effort Summary

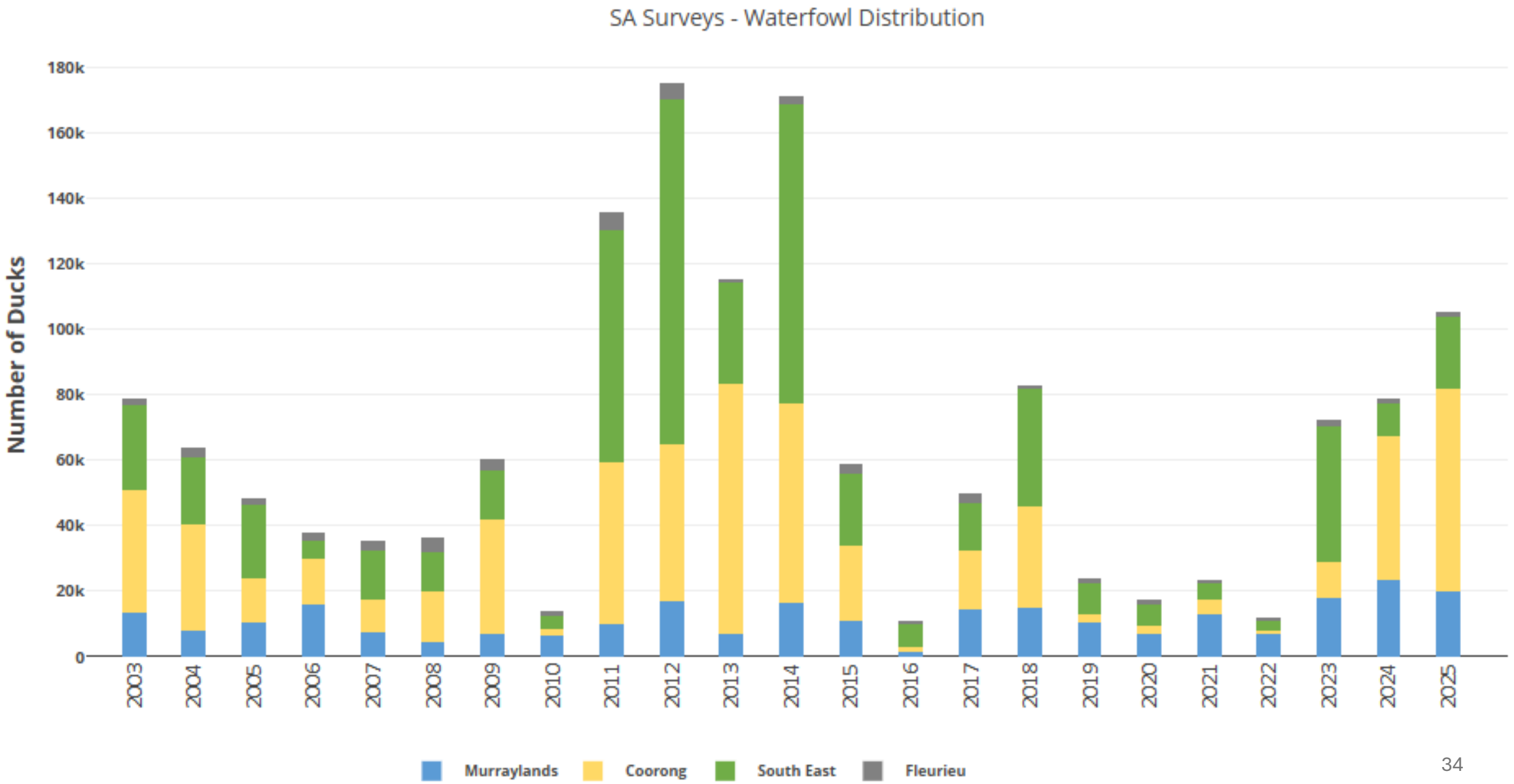
	Murraylands		Fleurieu		Coorong		South East		Total	
Year	No. of Wetlands Surveyed	Wetland Area Surveyed (ha)	No. of Wetlands Surveyed	Wetland Area Surveyed (ha)	No. of Wetlands Surveyed	Wetland Area Surveyed (ha)	No. of Wetlands Surveyed	Wetland Area Surveyed (ha)	No. of Wetlands Surveyed	Wetland Area Surveyed (ha)
2003	23	1450	15	518	22	3392	28	7175	88	12535
2004	21	1594	15	488	25	3020	25	4251	86	9353
2005	22	1639	15	507	25	2205	24	3783	86	8134
2006	24	1650	15	512	28	3560	24	3283	91	9005
2007	25	2890	12	502	28	3365	26	3105	91	9862
2008	26	2790	14	562	27	3100	28	2618	95	9070
2009	24	2750	12	564	27	3210	28	2710	91	9234
2010	25	3570	14	466	22	3405	26	2196	87	9637
2011	19	2970	16	1695	17	4147	25	3128	77	11940
2012	20	3070	16	1695	18	4247	25	3128	79	12140
2013	13	2670	5	16	12	2725	19	6406	49	11817
2014	24	4785	12	307	19	5680	22	7223	77	17995
2015	23	3744	13	3990	20	3009	23	2298	79	13040
2016	22	6701	16	1798	17	3883	30	5492	85	17874
2017	17	3504	14	1102	13	2438	17	3852	61	10896
2018	21	2406	15	316	20	2902	25	8812	81	14436
2019	16	2247	14	232	10	307	22	1886	62	4672
2020	24	3329	16	277	21	4235	29	15714	90	23555
2021	25	17517	16	1212	20	6496	34	9347	95	34574
2022	20	16260	13	307	13	4149	29	13082	75	33801
2023	23	17777	12	757	21	12754	34	48661	90	79951
2024	23	37553	12	3443	18	19610	35	36116	88	96724
2025	**23**	**9794**	**13**	**249**	**22**	**8323**	**33**	**37908**	**91**	**56276**
Average	22	6637	14	935	20	4790	27	10095	82	22457

2025 SA surveys – Wetland capacity

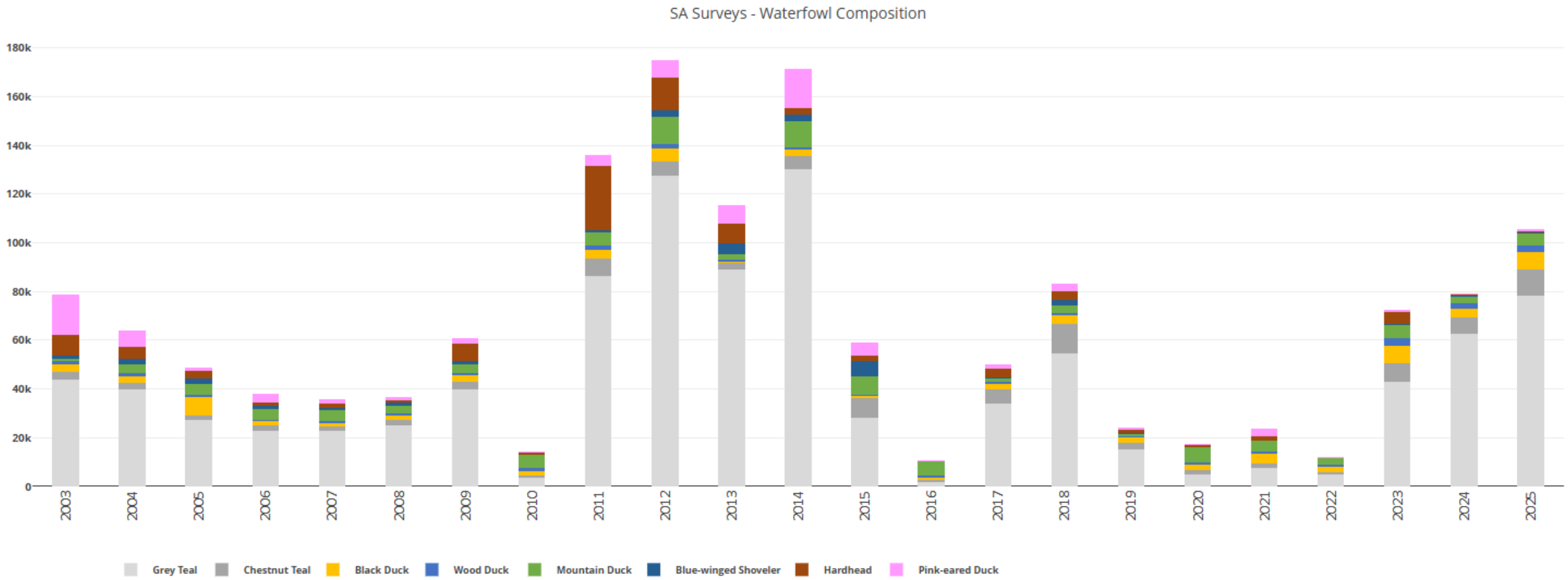


0 – No water, the wetland is completely dry
1 – Low isolated shallow pools drying back within the wetland
3 – Moderate water level is noticeably lower than the tops of the banks
5 – High water is high on the banks, possibility of water spilling outside the normal boundaries of the wetland.

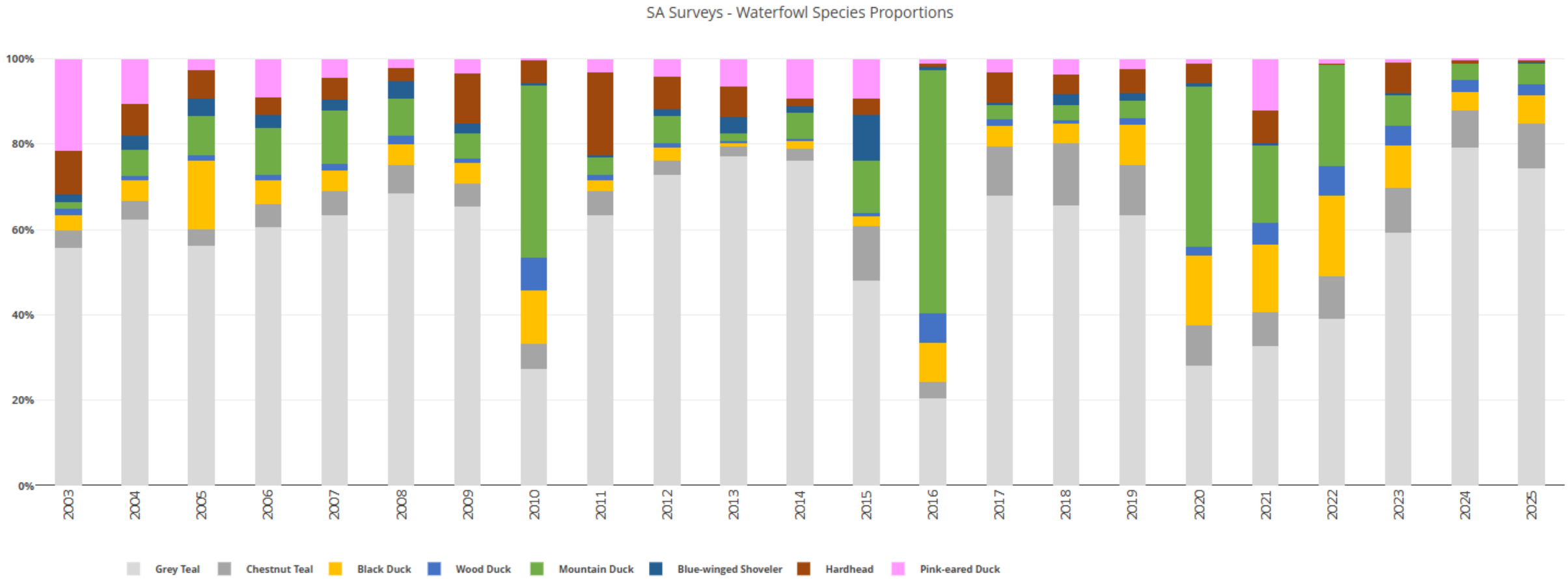
2025 SA surveys – waterfowl distribution



SA surveys – waterfowl composition



SA surveys – waterfowl species proportions



SA surveys – game duck abundance

Year	Grey Teal	Chestnut Teal	Black Duck	Wood Duck	Mountain Duck	Blue-winged Shoveller	Hard Head	Pink-eared Duck	Totals
2003	43,948	3,177	2,801	1,389	1,102	1,428	8,126	16,946	78,917
2004	39,789	2,746	3,038	801	3,869	2,118	4,673	6,762	63,796
2005	27,339	1,848	7,824	522	4,583	1,956	3,190	1,292	48,554
2006	22,881	2,078	2,096	441	4,216	1,178	1,520	3,396	37,806
2007	22,594	2,055	1,709	501	4,537	908	1,792	1,589	35,685
2008	25,031	2,398	1,724	819	3,129	1,518	1,093	794	36,506
2009	39,626	3,232	2,955	724	3,539	1,364	7,084	2,088	60,612
2010	3,801	826	1,733	1,051	5,609	86	760	33	13,899
2011	86,256	7,341	3,689	1,661	5,482	715	26,342	4,358	135,844
2012	127,695	5,734	5,311	1,686	11,422	2,331	13,434	7,472	175,085
2013	89,105	2,658	689	627	2,052	4,419	8,435	7,353	115,337
2014	130,353	5,084	2,982	613	10,730	2,634	2,967	15,915	171,277
2015	28,392	7,630	1,243	464	7,251	6,374	2,277	5,487	59,117
2016	2,200	401	997	724	6,112	87	83	107	10,709
2017	34,009	5,776	2,324	841	1,692	171	3,636	1,535	49,983
2018	54,665	11,946	3,839	672	3,082	2,076	3,809	3,028	83,114
2019	15,151	2,818	2,283	395	955	438	1,341	572	23,954
2020	4,845	1,656	2,797	375	6,478	134	809	178	17,272
2021	7,715	1,900	3,748	1,172	4,331	73	1,815	2,873	23,627
2022	4,703	1,193	2,268	841	2,876	7	21	119	12,028
2023	42,873	7,562	7,196	3,415	5,229	302	5,122	696	72,395
2024	62,649	6,849	3,402	2,357	3,004	36	607	185	79,089
2025	**78,194**	**10,960**	**7,169**	**2,470**	**5,318**	**149**	**663**	**250**	**105,173**
Average	43,209	4,255	3,209	1,068	4,635	1,326	4,330	3,610	65,643

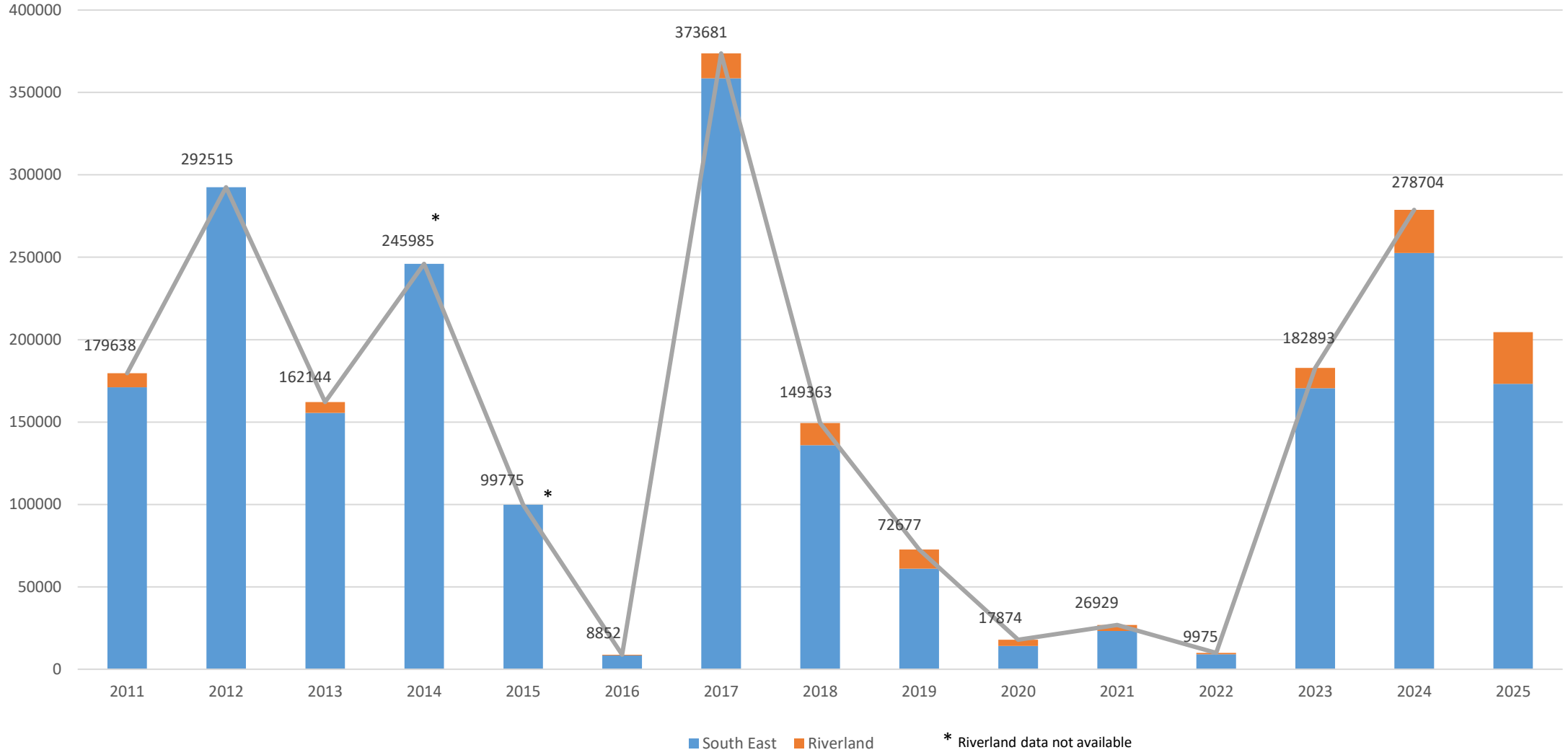
SA surveys – species proportions

Year	Grey Teal	Chestnut Teal	Black Duck	Wood Duck	Mountain Duck	Blue-winged Shoveller	Hard Head	Pink-eared Duck
2003	55.7	4	3.5	1.8	1.4	1.8	10.3	21.5
2004	62.4	4.3	4.8	1.3	6.1	3.3	7.3	10.6
2005	56.3	3.8	16.1	1.1	9.4	4	6.6	2.7
2006	60.5	5.5	5.5	1.2	11.2	3.1	4	9
2007	63.3	5.8	4.8	1.4	12.7	2.5	5	4.5
2008	68.6	6.6	4.7	2.2	8.6	4.2	3	2.2
2009	65.4	5.3	4.9	1.2	5.8	2.3	11.7	3.4
2010	27.3	5.9	12.5	7.6	40.4	0.6	5.5	0.2
2011	63.5	5.4	2.7	1.2	4	0.5	19.4	3.2
2012	72.9	3.3	3	1	6.5	1.3	7.7	4.3
2013	77.3	2.3	0.6	0.5	1.8	3.8	7.3	6.4
2014	76.1	3	1.7	0.4	6.3	1.5	1.7	9.3
2015	48	12.9	2.1	0.8	12.3	10.8	3.9	9.3
2016	20.5	3.7	9.3	6.8	57.1	0.8	0.8	1
2017	68	11.6	4.6	1.7	3.4	0.3	7.3	3.1
2018	65.8	14.4	4.6	0.8	3.7	2.5	4.6	3.6
2019	63.3	11.8	9.5	1.6	4	1.8	5.6	2.4
2020	28.1	9.6	16.2	2.2	37.5	0.8	4.7	1
2021	32.7	8	15.9	5	18.3	0.3	7.7	12.2
2022	39.1	9.9	18.9	7	23.9	0.1	0.2	1
2023	59.2	10.4	9.9	4.7	7.2	0.4	7.1	1
2024	79.2	8.7	4.3	3	3.8	<0.1	0.8	0.2
2025	**74.3**	**10.4**	**6.8**	**2.3**	**5.1**	**0.1**	**0.6**	**0.2**
Average	57.7	7.2	7.3	2.5	12.6	2	5.8	4.9

2025 Abundances relative to long-term averages

		Grey Teal	Chestnut Teal	Black Duck	Wood Duck	Mountain Duck	Blue-winged Shoveller	Hard Head	Pink-eared Duck	Totals
SA W&W Surveys	2025	78,194	10,960	7,169	2,470	5,318	149	663	250	105,173
	dataset average (2003-2025)	43,209	4,255	3,209	1,068	4,635	1,326	4,330	3,610	65,643
	2025 as % of dataset average	181	258	223	231	115	11	15	7	160
EAWS	2025	95,067	248	29,851	8,400	3,130	186	15,505	9,579	161,966
	dataset average (1983-2025)	106,460	1,693	17,470	12,792	7,180	2,028	15,709	36,496	199,830
	2025 as % of dataset average	89	15	171	66	44	9	99	26	81

SA aerial surveys



Waterfowl and habitat summary

South Australia

Wetland habitat in 91 SA wetlands	Around 76% of wetlands were partially-full to full. Coorong, Fleurieu and Murraylands sites mostly full. South East sites were variable from full to empty.
Abundance of ducks	105,173 total count above the long-term average of 65,643 since 2003 c.160%.
Species dominance	Resident: nomadic species ratio approximately 1:3, compared with 1:4 in 2024.

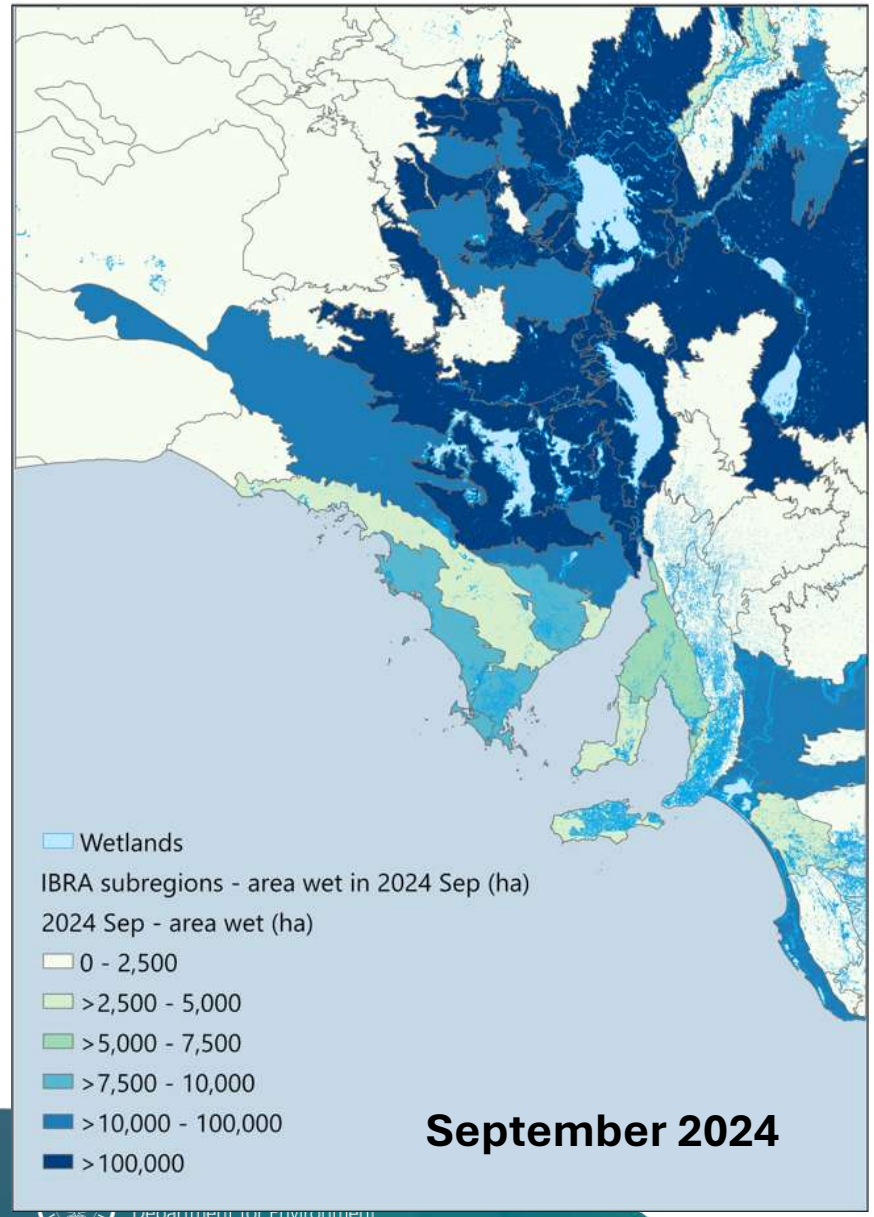
Eastern Continental Scale

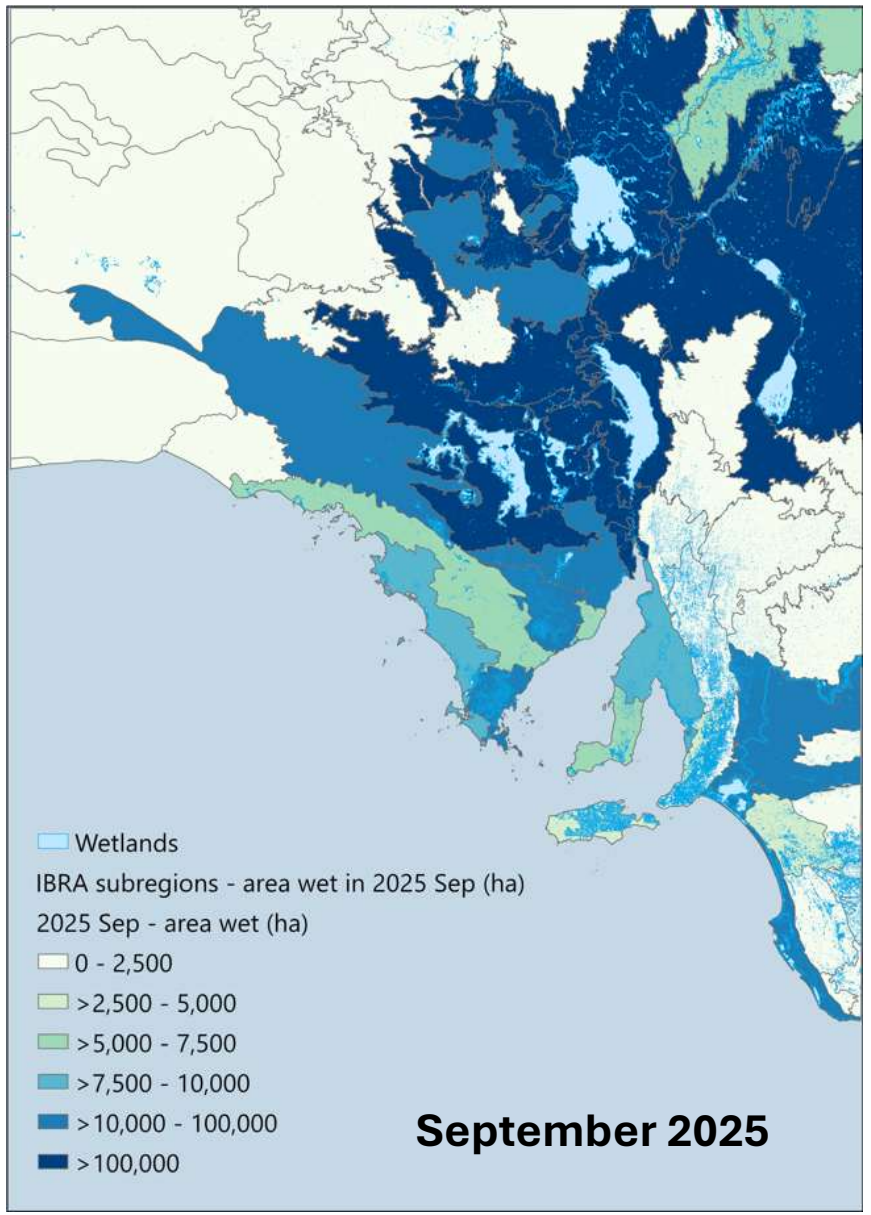
Wetland area index	Increased considerably from the previous year, well above the long-term average.
Total waterbird abundance	Increased significantly from 2024 to slightly above the long-term average; this was 12th highest total in 43 years.
Breeding index & # species breeding	Total breeding index (nests + broods) was 1,270, an order of magnitude increase from the previous year but well below the long-term average. Breeding species' richness also increased considerably with 16 species recorded breeding. However, this was comprised mainly of five species (Magpie Goose, Little Black Cormorant, Straw-necked Ibis, Black Swan and Caspian Tern), accounting for 82% of the total breeding recorded. Breeding was predominantly limited to a few locations and comprised mostly Magpie Goose, Little Black Cormorants and Pelicans.
Game duck species	Australasian Shoveller, Chestnut Teal, Mountain Duck, Pink-eared Duck and Wood Duck had abundances well below their long-term averages; Hardhead and Grey Teal were close to their long-term averages and Black Duck was above it's long-term average.

Landscape condition

- Remotely sensed wetland extent
- Plant Growth Index
- Soil Moisture
- Pasture Biomass

Remotely sensed wetland extent

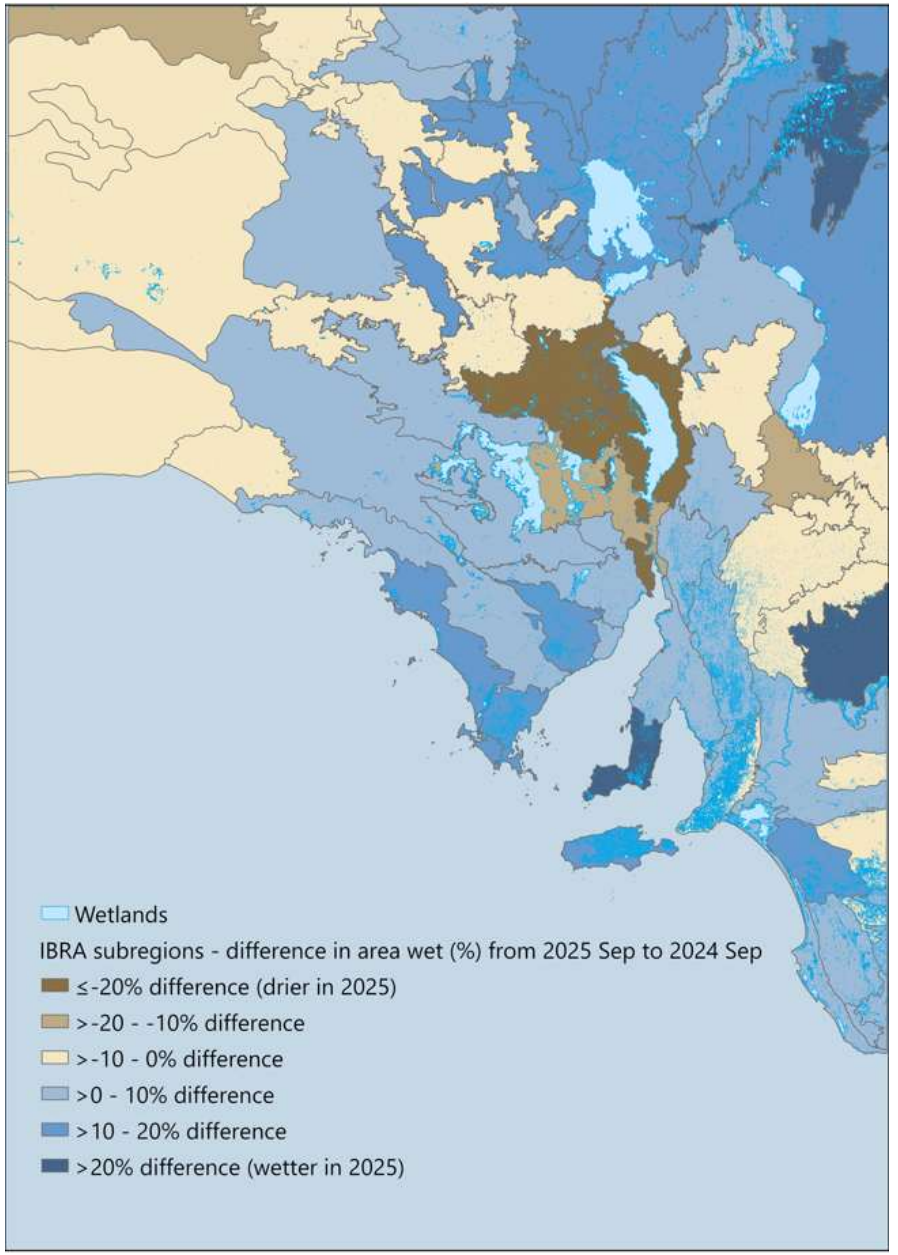




Remotely sensed wetland extent

Difference in extent between
September 2025 and September 2024

- The Sentinel imagery was used to determine the area and percentage within each DEA waterbody and sewage pond that was covered in water in both 2024 and 2025. DEA waterbodies and sewage ponds were classified as ‘wet’ if >10% was covered in water.
- All dams (i.e. those not captured in DEA waterbodies) were considered to be 100% covered in water
  - The Sentinel imagery was not particularly successful in capturing water in smaller waterbodies, like dams, therefore for this analysis the assumption was made that all dams were full



Plant growth index

The map shows the 'anomaly' of plant growth (fractional photosynthetic cover) for the year-to-date period compared with the 10-year average for the same period 2008–2017.
The data is derived from 500m grid resolution MODIS Fractional Cover satellite data. This data and finer resolution (30m) Fractional Cover data using Landsat/Sentinel 2 (CSIRO algorithm) can be viewed at GEOGLAM RAPP (geo-rapp.org)

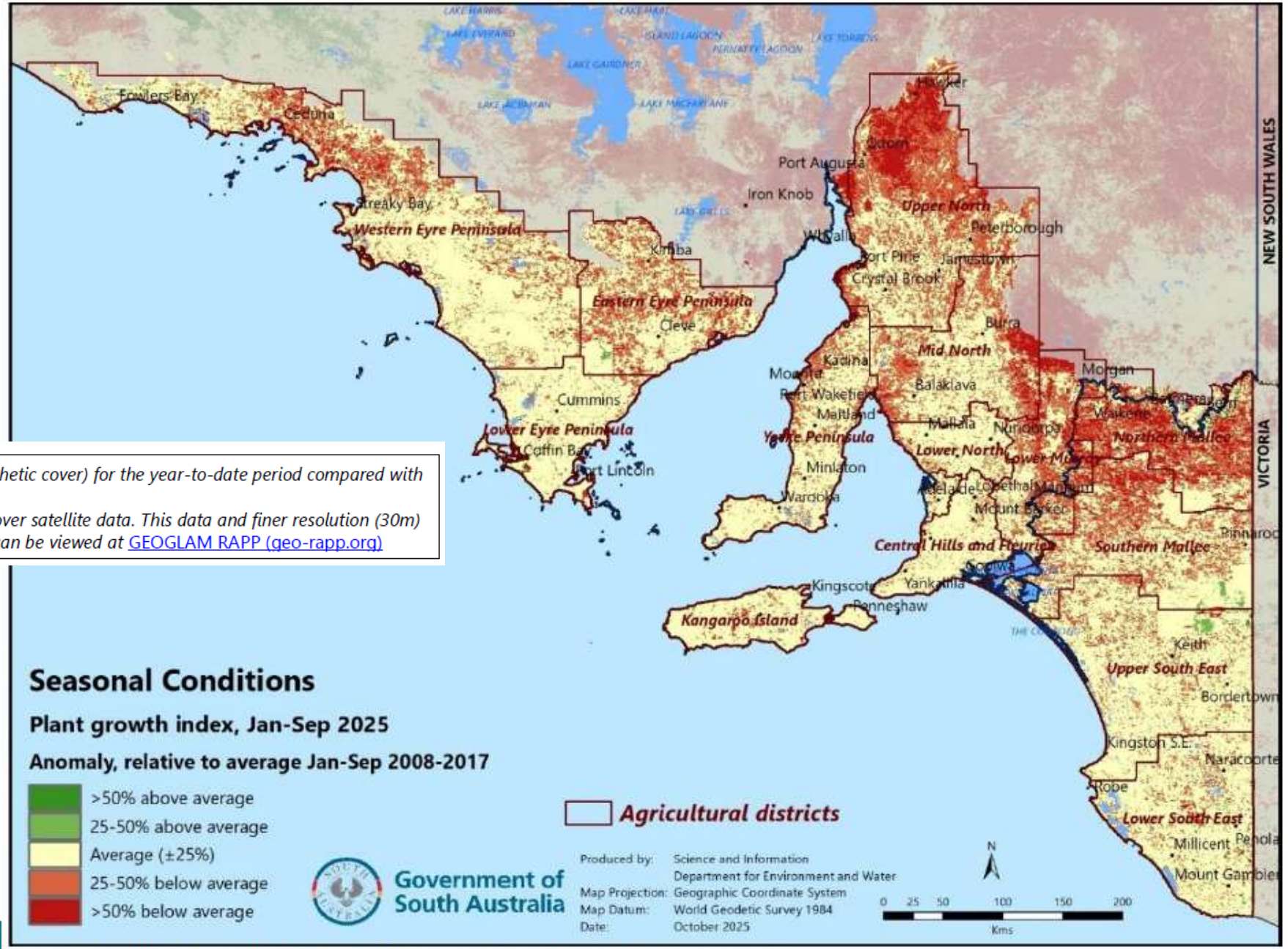


Figure 12: Plant growth index for the agricultural zone, Jan–Sep 2025

Plant growth index

[1] Month cover index deciles were calculated from MODIS Fractional Cover satellite data from 2001 to 2024

The map shows the 'anomaly' of percentage cover (photosynthetic plus dry fractions) for the current month compared with the 10-year average for that month (2008–2017 period). The data is derived from 500m grid resolution MODIS Fractional Cover satellite data. This data and finer resolution (30m) Fractional Cover data using Landsat/Sentinel 2 (CSIRO algorithm) can be viewed at GEOGLAM RAPP (geo-rapp.org)

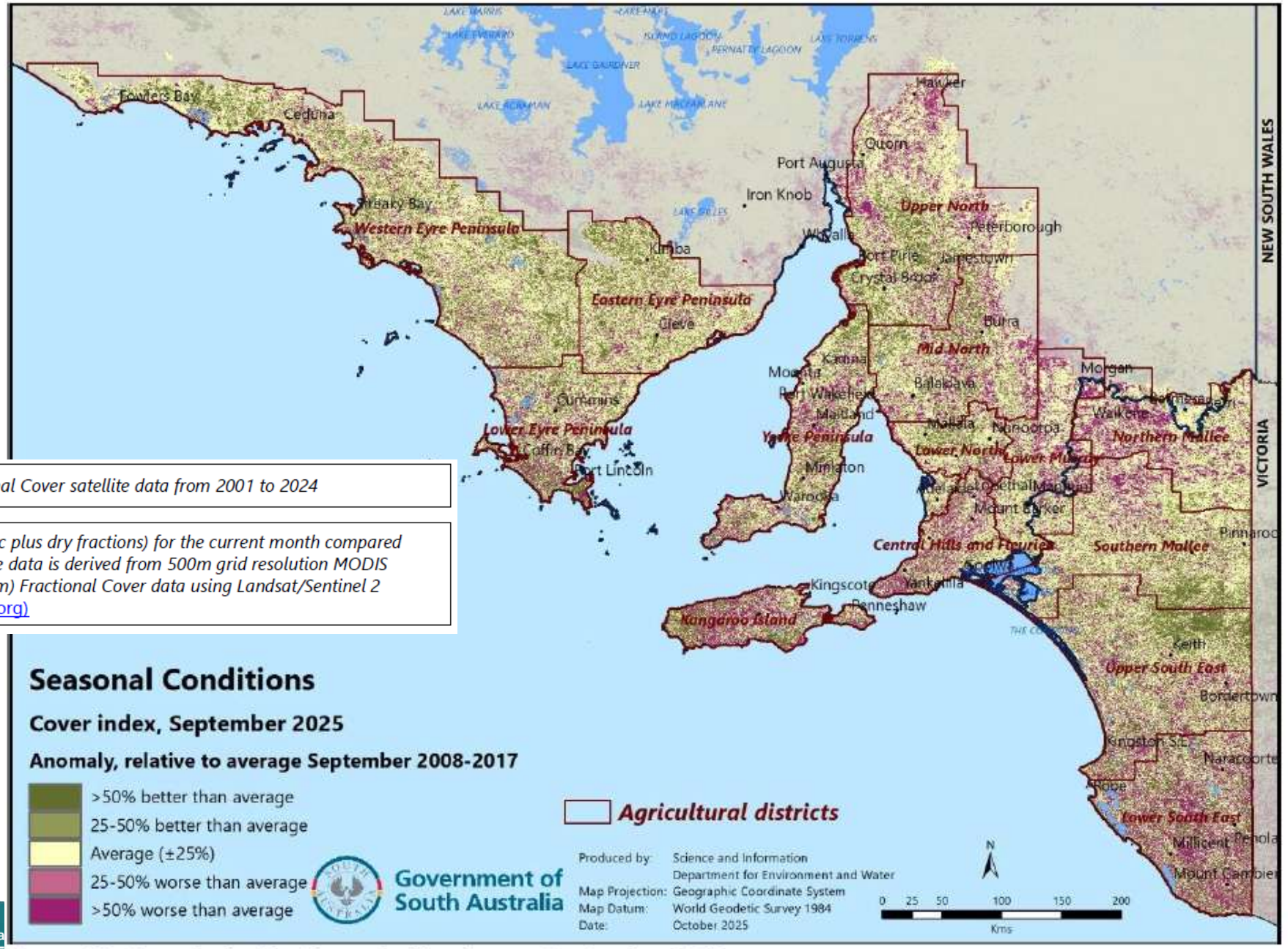
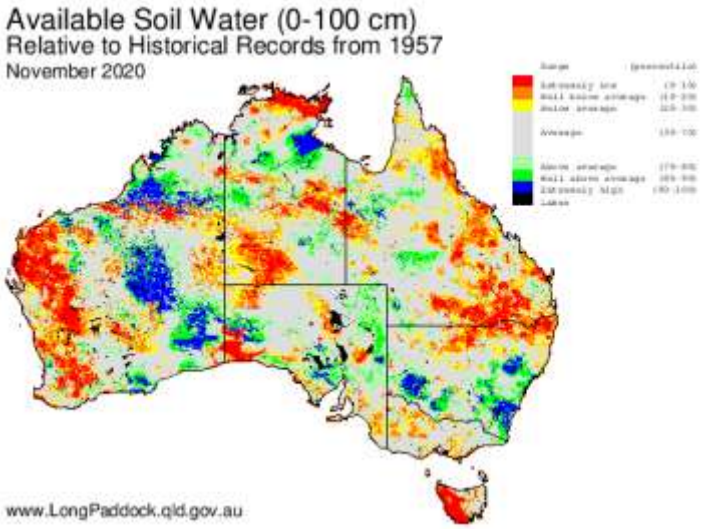
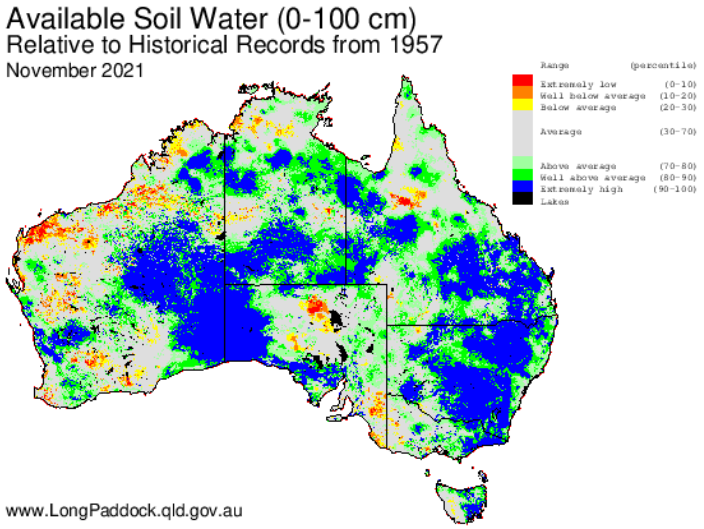


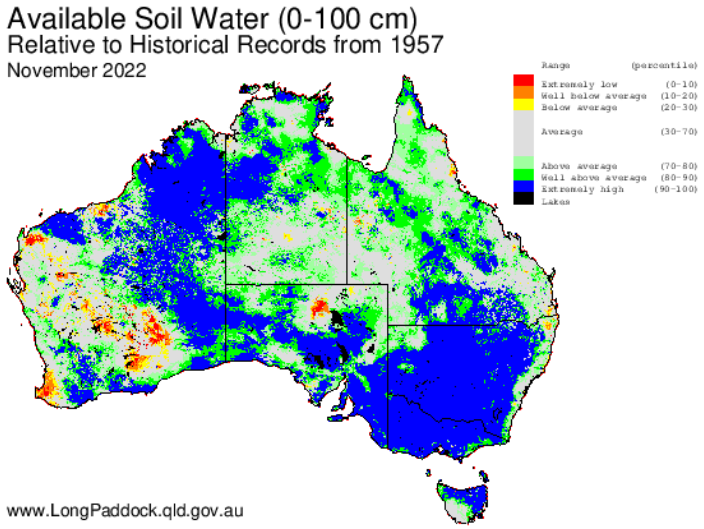
Figure 13: Cover index for the agricultural zone, September 2025

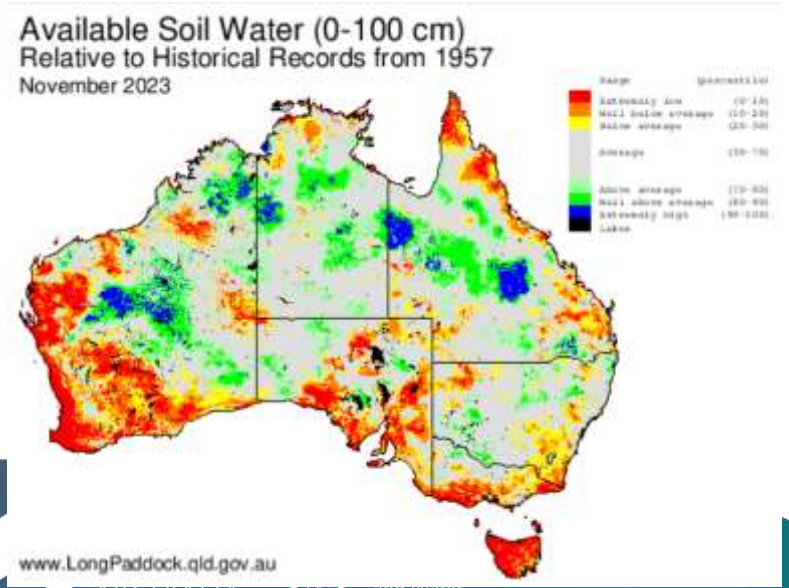
Available soil water (0-100cm)

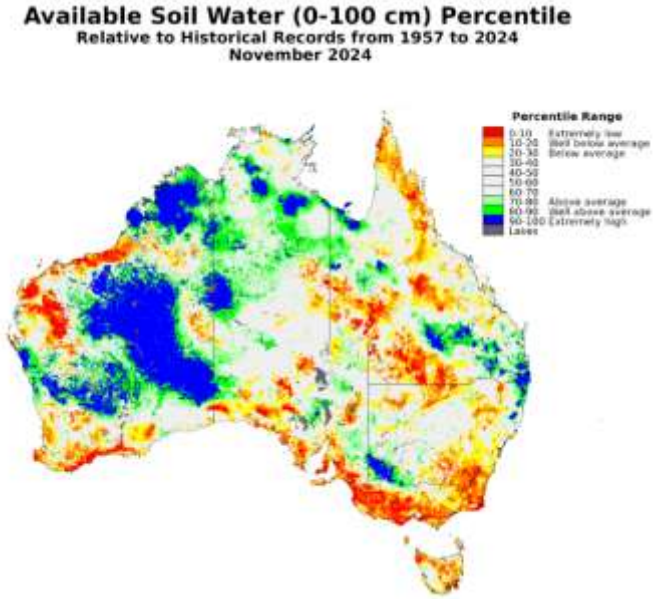
https://www.longpaddock.qld.gov.au/aussiegrass/

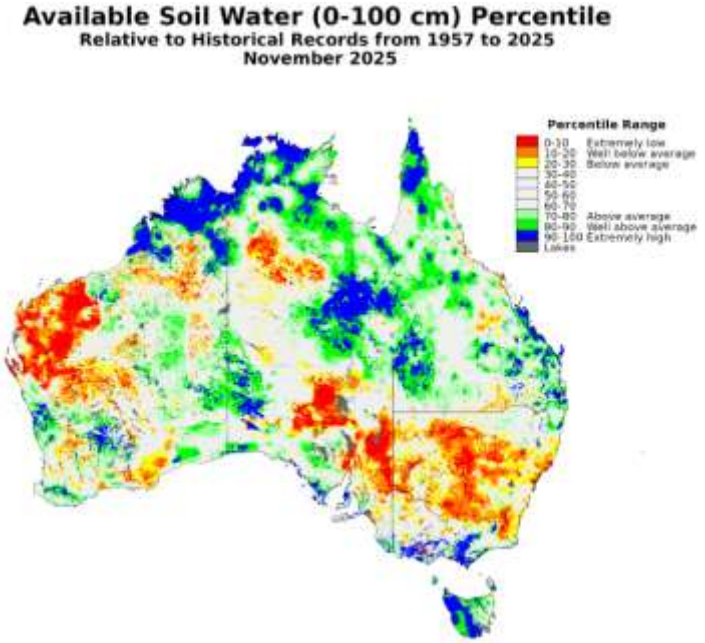








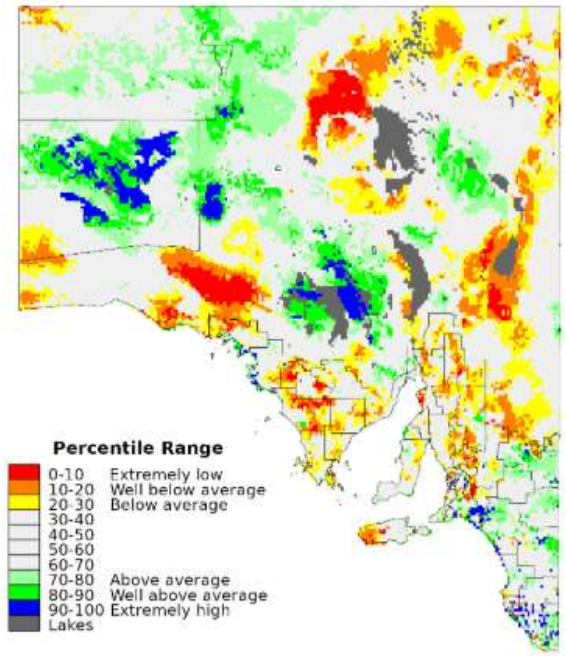




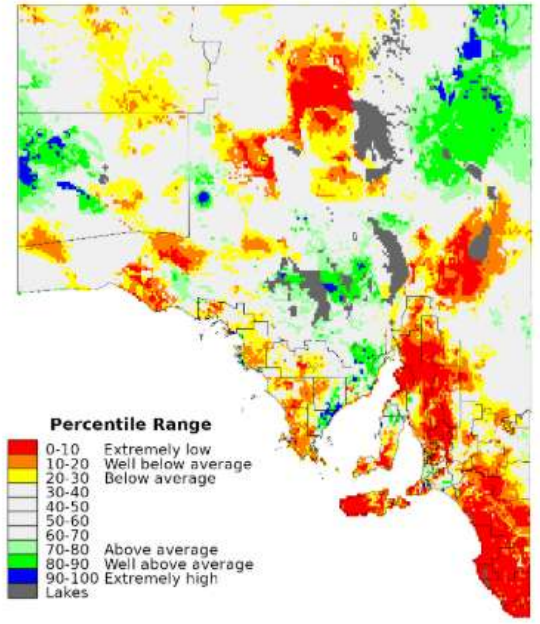
Available soil water (0-100cm)

https://www.longpaddock.qld.gov.au/aussiegrass/

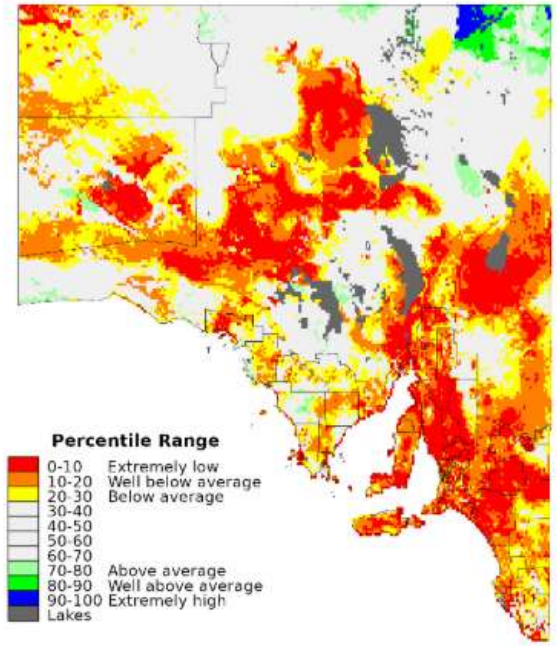
Available Soil Water (0-100 cm) Percentile
Relative to Historical Records from 1957 to 2025
December 2022 to November 2023



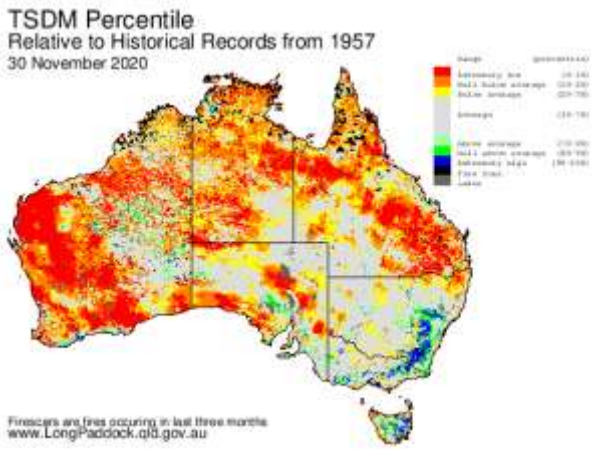
Available Soil Water (0-100 cm) Percentile
Relative to Historical Records from 1957 to 2025
December 2023 to November 2024

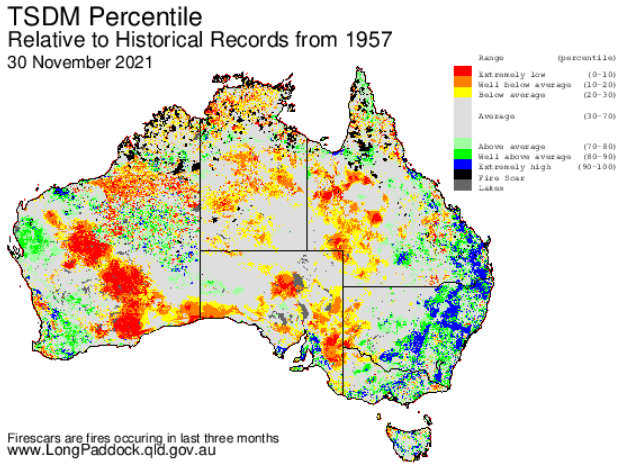


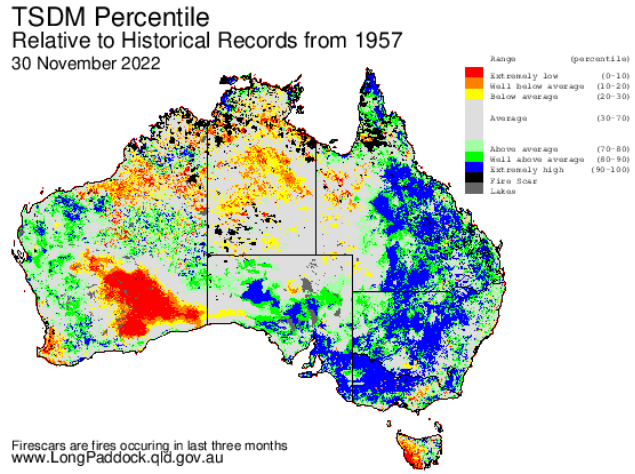
Available Soil Water (0-100 cm) Percentile
Relative to Historical Records from 1957 to 2025
December 2024 to November 2025

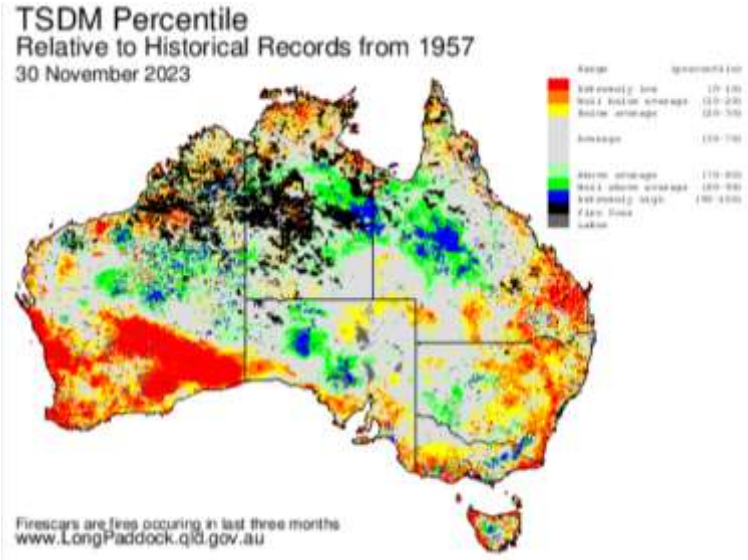


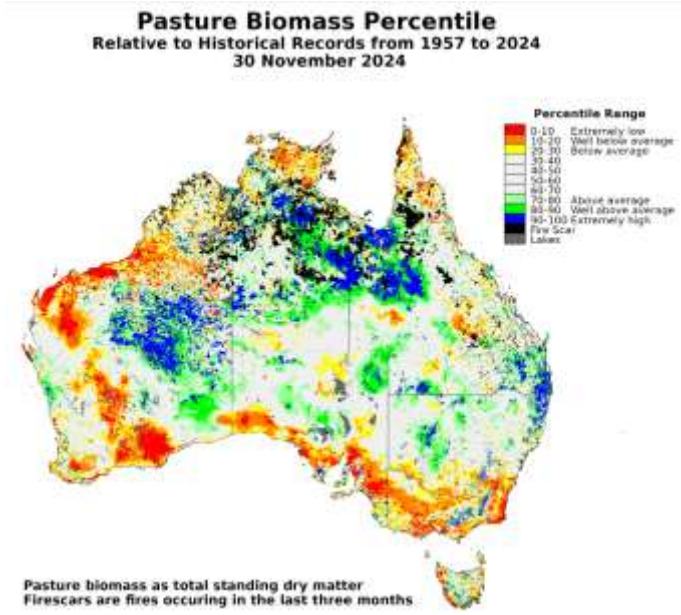
Pasture biomass - https://www.longpaddock.qld.gov.au/aussiegrass/

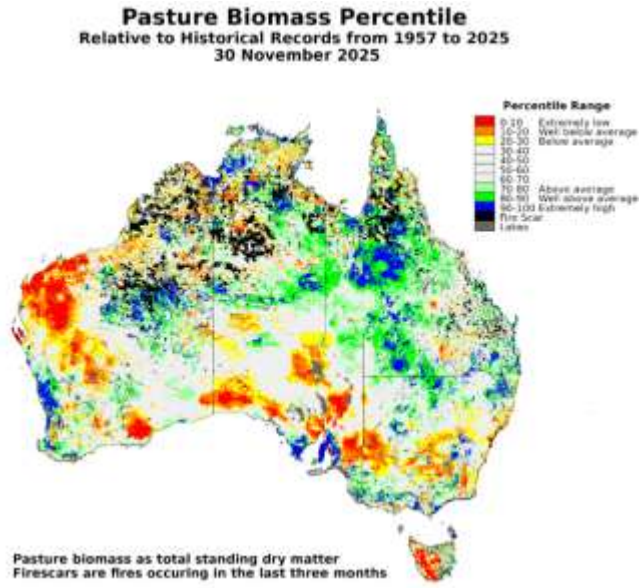




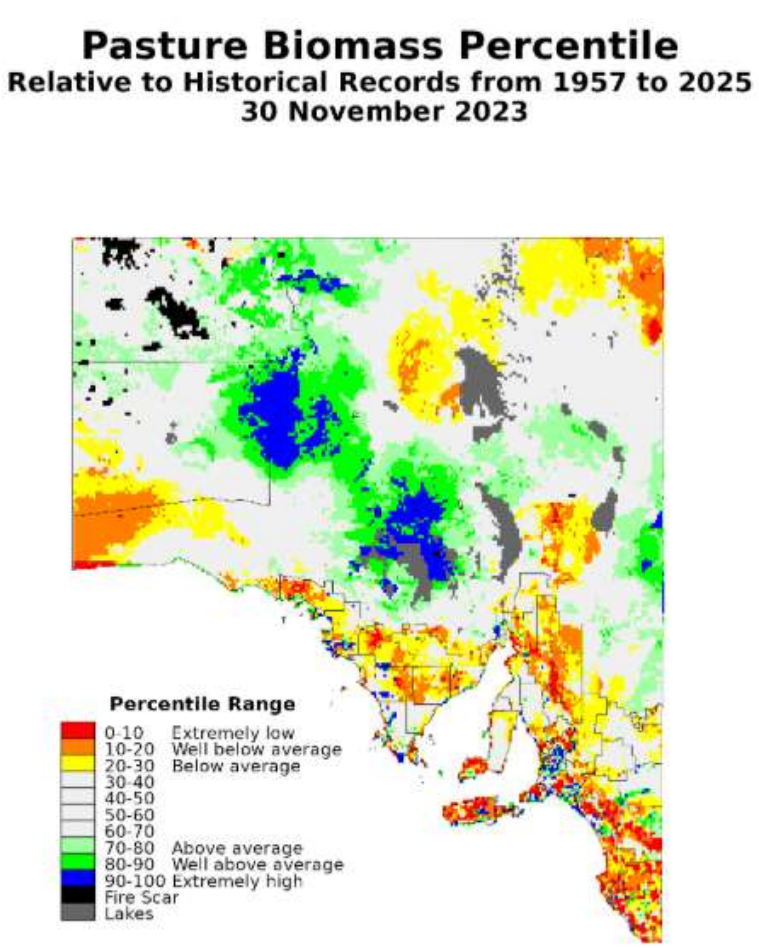


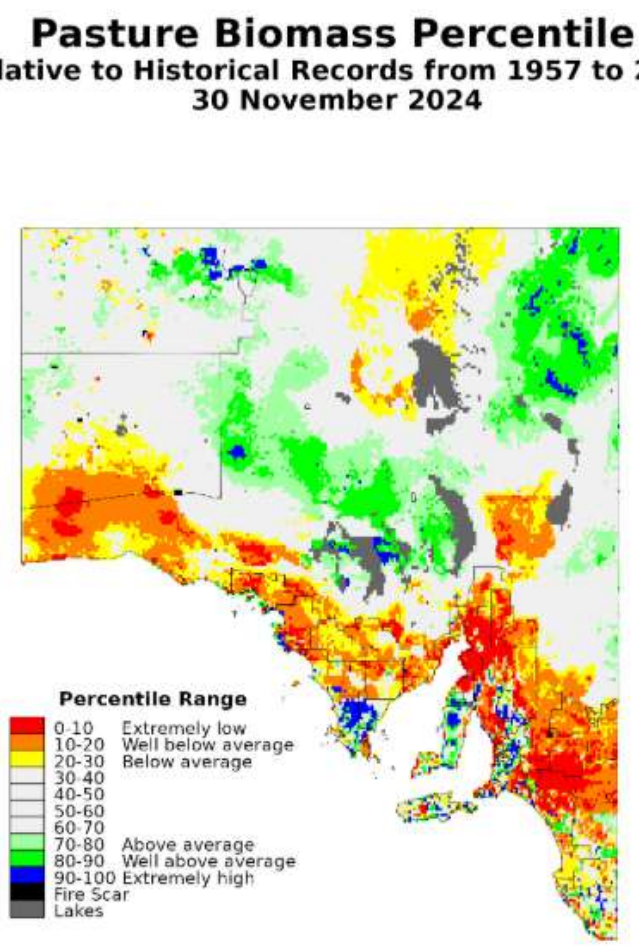


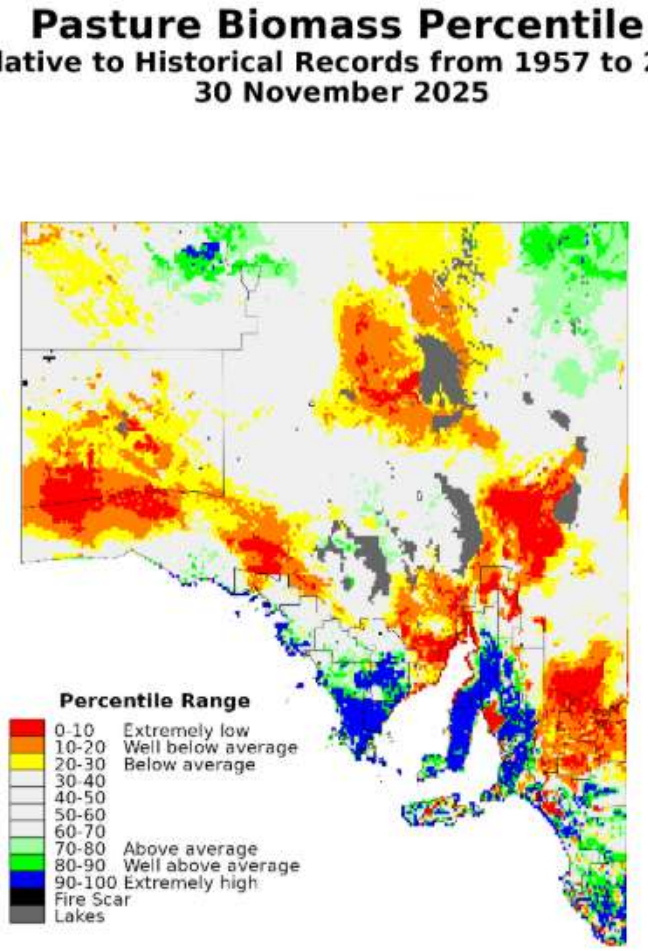




Pasture biomass - https://www.longpaddock.qld.gov.au/aussiegrass/



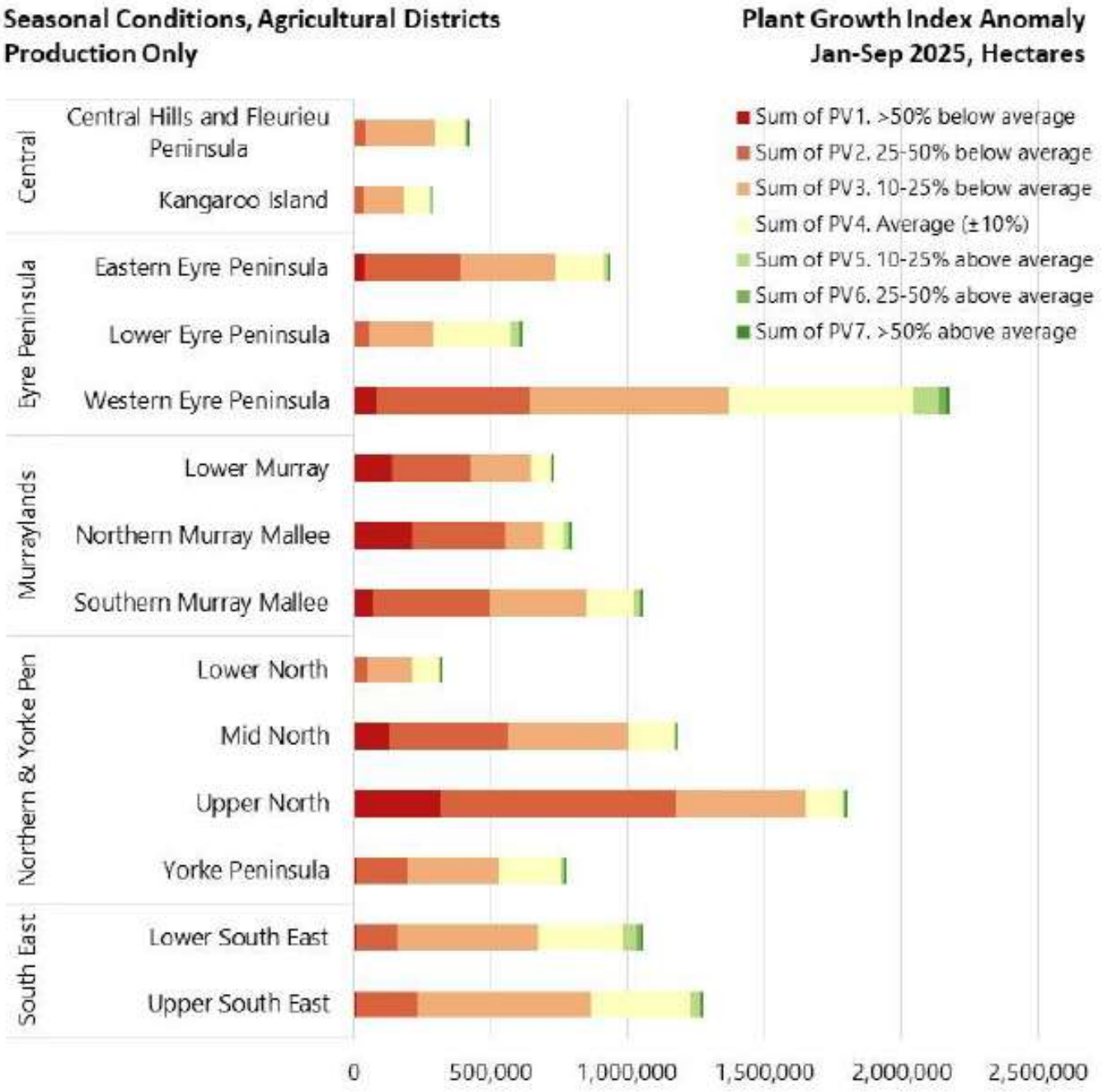




Plant growth anomaly

Seasonal conditions and erosion risk on agricultural land

September 2025



Landscape condition summary

Wetland Extent

- Total area wet across SA in 2025 was 1,696,646ha approximately 11% increase on 2024 of 1,517,274ha
- For wetlands in the 'Agricultural Zone', around 22% 'wet' in September 2024. Compared with 24% 'wet' in September 2023, 27% in September 2022 and 25% in September 2021.

Plant Growth Index relative to average

- Plant growth for January-September 2025 over the whole agricultural zone was below average overall with 36% of production land poorer than 25% below average. Significant areas of land below average in the north of Upper North, Northern Mallee, and Lower Mallee, and some areas Eyre Peninsula and Southern Mallee. Spring rains needed for reasonable crop yields due to minimal stored soil moisture. This has been too late for some crops and pastures that have already senesced.

Available Soil Water

- Soil moisture across the state was below average to extremely below average.

Pasture Biomass

- The pasture biomass (as Total Standing Biomass (TSDM)) across SA is highly variable with most of the agricultural zone average – extremely high. The MDB and other northern areas are below average to extremely low.

2026 open season

- 2025 open season review
- Hunter survey results
- Open season summary
- Guidance matrix

Data from Hunting surveys received as of 19 November 2025

2025 open season review

Restricted 1 duck season

- 14 week season 22 March – 29 June 2025
- Bag limit – 6 birds per hunter per day
- Maximum daily take of Australian shelduck – 2 ducks per day
- Excluded: Australasian (blue-winged) shoveler, pink-eared duck, hardhead
- Bool Lagoon Game Reserve closed
- 784 permits issued
- 199 Reported did not hunt

Restricted quail open season

- 13 week season 26 April – 27 July 2025
- Bag limit – 15 stubble quail per hunter per day
- Open season applies to all of state
- 106 permits issued
- 73 Reported did not hunt

Duck hunter survey results

2024 onwards Mandatory hunting survey return as per condition of permit sent to DEW

Pre-2024 Voluntary survey sent to CHASA

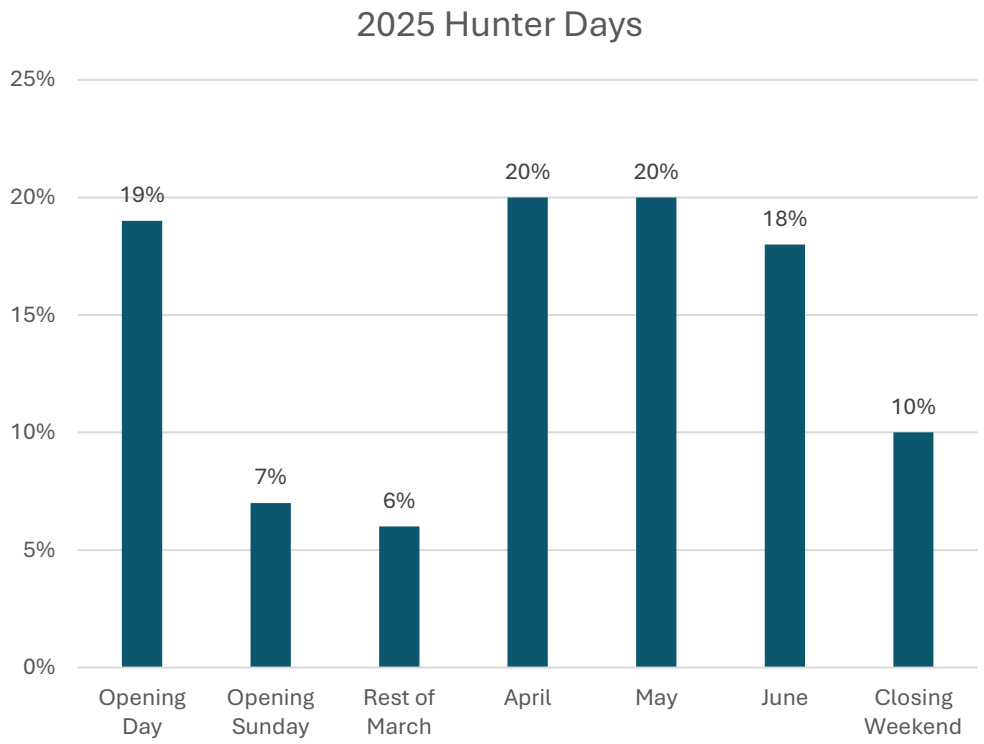
	2025 DEW survey	**2024** DEW survey	**2023** CHASA survey	**2022** CHASA survey	**2021** CHASA survey	**2020** CHASA survey
Permits issued	784	1405	1337	1127	1210	No Data
Return surveys received	754 (96%)	1192 (84%)	165 (12%)	117 (10%)	110 (9%)	No Data
Hunter days reported	2120	3845	663	586	434	No Data
Total duck recorded	8931	21891	3993	2347	1140	No Data
Bag limit	6	10	8	8	4	8
Mean daily bag	4.21	5.6	6.02	4	2.63	5.92
Seasonal harvest per person	16.1	21.0	24.1	20.1	11.6	27.2
Extrapolated hunter days	2203	4532	5372	5644	5348	7712
Extrapolated total harvest	9279	25803	35521	22652	12505	45652

Species harvest

	2025 DEW survey	2024 DEW survey	2023 CHASA survey	2022 CHASA survey	2021 CHASA survey	2019 CHASA survey
Black Duck	39%	28.6%	36.7%	44.0%	51.0%	27.0%
Grey Teal	39%	45.4%	39.3%	23.0%	29.0%	51.0%
Chestnut Teal	5%	11.1%	7.6%	2.0%	4.0%	6.0%
Wood Duck	13%	10.3%	12.7%	22.0%	10.0%	6.0%
Mountain Duck	4%	3.5%	3.6%	8.0%	5.0%	3.0%
Pink-eared Duck	NIB	0.8%	NIB	<1%	NIB	6.0%
Hardhead	NIB	0.4%	NIB	<1%	NIB	0.2%

Seasonal effort

Within the opening season, hunting effort was highest during opening weekend, equating to 31% of total hunter days.



Period	2025 Hunter Days DEW survey	2024 Hunter Days DEW survey	2023 Hunter Days CHASA survey	2022 Hunter Days CHASA survey	2021 Hunter Days CHASA survey	2019 Hunter Days CHASA survey
Opening day	19%	22%	17%	14%	17%	17%
Opening Sunday	7%	9%	6%	7%	10%	8%
Rest of March	6%	8%	6%	8%	7%	13%
April	20%	20%	25%	22%	21%	24%
May	20%	17%	19%	21%	21%	16%
June	18%	16%	17%	16%	14%	15%
Closing weekend	10%	8%	10%	10%	10%	8%

Regional hunting effort

Region	Hunter Days					
	2025 DEW survey	**2024** DEW survey	**2023** CHASA survey	**2022** CHASA survey	**2021** CHASA survey	**2019** CHASA survey
Adelaide Hills	3.1%	2.9%	2.1%	4.6%	1.6%	1.5%
South East (inc. Coorong)	31.3%	42.8%	36.2%	7.2%	9.0%	42.4%
Riverland	26.1%	21.4%	27.3%	39.9%	38.0%	23.2%
Murraylands	10.5%					
Mid North	0.8%	0.7%	1.5%	0.0%	0.2%	0.5%
Yorke Peninsula	0.3%	0.3%	1.6%	0.5%	0.7%	0.5%
Kangaroo Island	0.2%	0.3%	0.3%	0.0%	0.0%	0.0%
Flinders Rangers	<0.1%					
Eyre Peninsula	NA	0.3%	0.0%	0.0%	0.0%	0.0%
Unknown	NA	5.7%	0.0%	0.0%	0.0%	0.0%
Lower Lakes	*Murraylands Region	25.5%	30.3%	5.9%	50.0%	31.8%

Quail hunter survey results

2024 onwards Mandatory hunting survey return as per condition of permit sent to DEW

Pre-2024 Voluntary survey sent to CHASA

	2025 DEW survey	**2024** DEW survey	**2023** CHASA survey	**2022** CHASA survey	**2021** CHASA survey	**2020** CHASA survey
Quail permits issued	106	240	239	209	No season	No season
Return surveys received	99 (93%)	158 (65%)	27 (11%)	12 (5%)	NA	NA
Hunter days reported	81	337	159	57	NA	NA
Total quail recorded	545	1789	2416	700	NA	NA
Bag Limit	15	15	25	20	NA	NA
Mean daily bag	6.72	5.35	15.19	12.28	NA	NA
Seasonal harvest	21	11.32	89	58	NA	NA
Extrapolated hunter days	87	515	3664	1635	NA	NA
Extrapolated total harvest	586	2717	21,284	12,126	NA	NA

Regional & season effort

Region	**2025 hunter days** DEW survey	**2024 hunter days** DEW survey	**2023 hunter days** CHASA survey	**2022 hunter days** CHASA survey
Adelaide Hills	1%	5.8%	3.1%	2.0%
Mid North	14%	10.6%	3.7%	17.0%
Murraylands	12%			
Yorke Peninsula	6%	13.3%	10.7%	26.0%
Riverland	10%	7.5%	39.6%	26.0%
South East	54%	45.1%	19.5%	21.0%
Lower Lakes	*Murraylands	17.7%	23.3%	5.0%
Kangaroo Island	3%	-	-	-

Month	**2025 hunter days** DEW survey	**2024 hunter days** DEW survey	**2023 hunter days** CHASA survey	**2022 hunter days** CHASA survey
April 27-May	52%	31.3%	32.7%	19.0%
June	34%	31.7%	25.1%	37.0%
July	14%	37.0%	42.1%	44.0%

Duck & quail seasons 2017 onwards

Season	Duck Open Season				Quail Open Season	
	Season Status	Bag limit	Season duration		Bag limit	Season duration
2026	Pending	Pending	Pending		Pending	Pending
2025	2025 Season open R1	6*****	22/03/25 – 29/06/25		15	26/04/25 – 27/07/25
2024	2024 Season open R1	10	16/03/24 – 30/06/24		15	27/04/24 – 28/07/24
2023	2023 Season open R2	8	18/03/23 – 25/06/23		25	29/04/22 – 31/07/21
2022	2022 Season open R2	8	19/03/22 – 26/06/22		20	30/04/22 – 31/07/22
2021	2021 Season open R3	4****	20/03/21 – 27/06/21		no open season declared	
2020	2020 Season open R3	4***	28/03/20 – 31/05/20		no open season declared	
2019	2019 Season open R2	8	16/03/19 – 30/06/19		15	16/02/19 – 31/08/19
2018	2018 Season open R1	12	17/02/18 – 24/06/18		20	17/02/18 – 26/08/18
2017	2017 Season open R1	10	18/02/17 – 25/06/17		25	18/02/17 – 13/08/17

‘*’ =Unlimited WD, ‘**’ = Max 6 PBD, ‘***’ = Max 1 MD & max 1 PED, ‘****’ = no HH, PED, ‘*****’ Max 2 MD, ^ = no PED.
Note that BWS have not been in the bag for any year listed on this page

Duck & quail seasons 2006 - 2016

Season	Duck Open Season				Quail Open Season	
	Season Status	Bag limit	Season duration		Bag limit	Season duration
2016	2016 Season open R3	5	19/03/16 – 26/06/16		20	13/02/16 – 31/07/16
2015	2015 Season open R1	10	14/02/15 – 28/06/15		25	04/04/15 – 30/08/15
2014	2014 Season open R1	10	15/02/14 – 29/06/14		20	15/02/14 – 27/07/14
2013	2013 Season open FULL	12	16/02/13 – 30/06/13		25	16/02/13 – 28/07/13
2012	2012 Season open FULL	12	18/02/12 – 24/06/12		25	03/03/12 – 29/07/12
2011	2011 Season open FULL	12**	19/02/11 – 26/06/11		20	02/04/11 – 31/07/11
2010	2010 Season open R3	6	27/03/10 – 27/06/10		15	03/04/10 – 25/07/10
2009	2009 Season open R3	4	28/03/09 – 31/05/09		15	28/03/09 – 31/05/09
2008	2008 Season closed	no open season declared			15	05/04/08 – 27/07/08
2007	2007 Season closed	no open season declared			10	07/04/07 – 29/07/07
2006	2006 Season open FULL	12*	18/02/06 – 25/06/06		25	18/02/06 – 30/07/06

‘*’ =Unlimited WD, ‘**’ = Max 6 PBD, ‘***’ = Max 1 MD & max 1 PED, ‘****’ = no HH, PED, ‘*****’ Max 2 MD, ^ = no PED.
Note that BWS have not been in the bag for any year listed on this page

Guidance matrix – season setting

SA waterfowl abundance (ground counts)	SA wetland status (% wetlands in the range 3-5)	SA River Murray inflows (6 GL/day = entitlement flow)	Total waterfowl abundance (EAAWS)	Number of all Waterbird species breeding (EAWS)	Breeding index all species (EAWS)	Season Status
>80,000	>80% wetlands	Entitlement flow - average local breeding	>300,000	>12	>2,500	**Full**
60-80,000	70-80% wetlands	Below entitlement - most managed wetlands watered	240-300,000	10-12	1,876 – 2,500	**Restricted level 1**
40-60,000	50-70% wetlands	Below entitlement - some managed wetlands watered	180-240,000	8-9	1,251 – 1,875	**Restricted level 2**
20-40,000	40-50% wetlands	Below entitlement - limited watering of icon sites	150-180,000	5-7	625 – 1,250	**Restricted level 3**
<20,000	<40% wetlands	Below entitlement flow - main channel flow only	<150,000	<5	<625	**No Season**

Duck & quail season guidance matrix parameters and season status 2016-2025

	SA waterfowl abundance Ground(SA Aerial)	SA wetland status (% wetlands in the range 3-5)	SA River Murray inflows (6 GL/day = entitlement flow)	Total waterfowl abundance (EAWS)	Number of all Waterbird species breeding (EAWS)	Breeding index all species (EAWS)	Season Status
2025	105,173 (204,514)	76%	Above Entitlement Flow - average local breeding	375,419	16	1,270	Pending
2024	79,089 (278,704)	67%	Above Entitlement Flow - average local breeding	154,039	5	141	2025 Season Open R1
2023	72,395 (182,893)	92%	Above Entitlement Flow - average local breeding	337,081	11	6,036	2024 Season Open R1
2022	12,028 (9,975)	85%	Above Entitlement Flow - average local breeding	48,748	21	60,580	2023 Season Open R2
2021	23,627 (26,929)	79%	Above Entitlement Flow - average local breeding	49,704	9	2,494	2022 Season Open R2
2020	17,272 (17,874)	78%	Above Entitlement Flow - average local breeding	91,230	3	364	2021 Season Open R3
2019	23,954 (72,677)	86%	Below entitlement - most managed wetlands watered	118,761	6	1,987	2020 Season Open R3
2018	83,114 (149,363)	89%	Above Entitlement Flow - average local breeding	101,185	2	<625	2019 Season Open R2
2017	49,983 (373,681)	93%	Above Entitlement Flow - average local breeding	150,642	6*	315	2018 Season Open R1
2016	10,709 (8,852)	93%	Above Entitlement flow - average local breeding	9,406	~21*	~25,000*	2017 Season Open R1

Duck & quail season guidance matrix parameters and season status 20-205

	SA waterfowl abundance Ground(SA Aerial)	SA wetland status (% wetlands in the range 3-5)	SA River Murray inflows (6 GL/day = entitlement flow)	Total waterfowl abundance (EAWS)	Number of all Waterbird species breeding (EAWS)	Breeding index all species (EAWS)	Season Status
2015	59,117	56%	Entitlement flow - average local breeding	66,266	0	0	2016 Season Open R3
2014	171,277	66%	Entitlement flow - average local breeding	128,671	1	12	2015 Season open R1
2013	115,337 (162,144)	97%	Entitlement flow - average local breeding	96,850	4	212	2014 Season open R1
2012	175,085	84%	Entitlement flow - average local breeding	428,179	9	2,402	2013 Season open FULL
2011	135,844 (179,638)	97%	Entitlement flow - all managed wetlands watered	630,470	23	3,373	2012 Season open FULL
2010	13,899	92%	Entitlement flow - all managed wetlands watered	93,300	22	61,243	2011 Season open FULL
2009	60,612	88%	Below entitlement - most managed wetlands watered	172,253	7	599	2010 Season open R3
2008	36,506	68%	Below entitlement flow - limited watering of icon sites	136,657	5	725	2009 Season open R3
2007	35,685	40%	Below entitlement flow - main channel flow only	68,549	2	469	2008 Season closed
2006	37,806	32%	Below entitlement - some managed wetlands watered	89,920	4	180	2007 Season closed
2005	48,554	76%	Below entitlement - some managed wetlands watered	108,128	9	9,030	2006 Season open FULL

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