Australia's ENVIRONMENT

MID-YEAR UPDATE 2019/2020

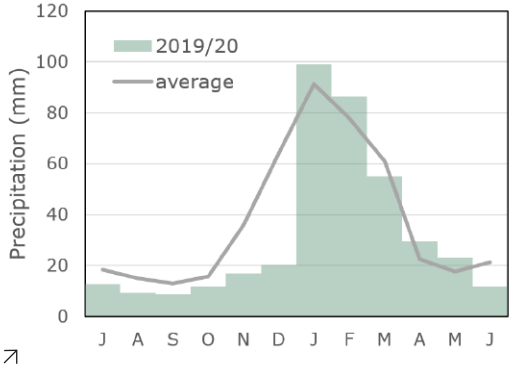
The first half of 2020 saw extensive fire activity followed by easing drought conditions in NSW and the ACT. This mid-year update provides a summary of events and environmental conditions in the first half of 2020 and over the 2019/20 financial year. For a detailed report on Australia's Environment in 2019, visit **www.ausenv.online**

Weather

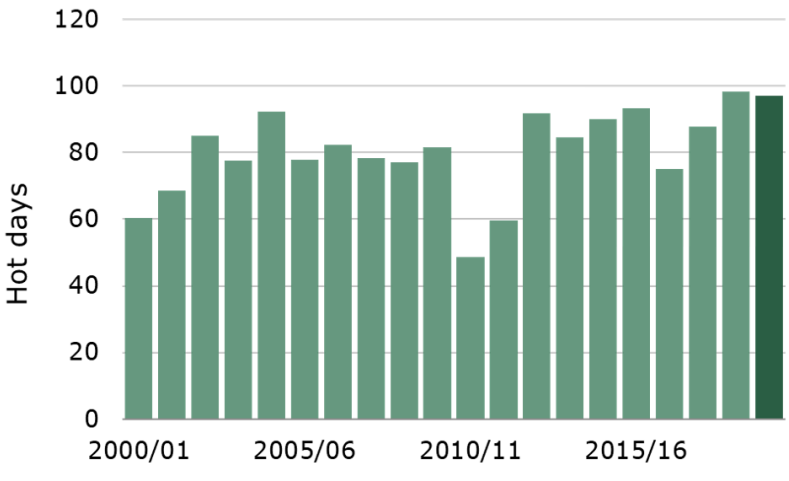
97 DAYS ABOVE 35°C

Rainfall in 2019/20 was 385 mm, below average but more than the previous year. This was due to above-average rainfall in the first half of 2020. June was dry.

Temperatures were high in 2019/20 with an average 97 hot days, close to the record-breaking year before. Regionally, there was a record number of hot days along the East Coast.



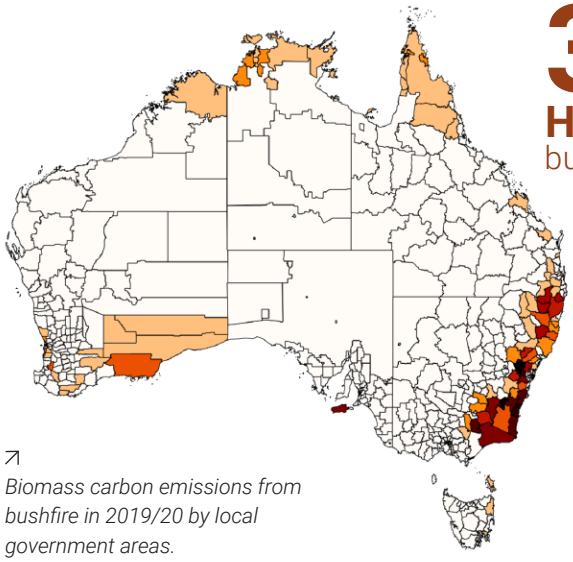
Monthly national rainfall in 2019/20 compared to 2000–2019 average (median) values



Average number of days above 35°C

Fire

The total area moderately to severely burnt in 2019/20 was 30m ha and well below average. This was due to low fuel availability and fire activity in northern Australia. Despite low fire activity overall, vast forest fires occurred in southeast Australia from southeast Queensland to Kangaroo Island. More than 6.3m ha were moderately to severely burnt, including 3.5m ha of protected environments, 1.5m ha of production forest, 83,000 ha of plantation forest and 1.2m ha of other land uses (mostly grazing land).

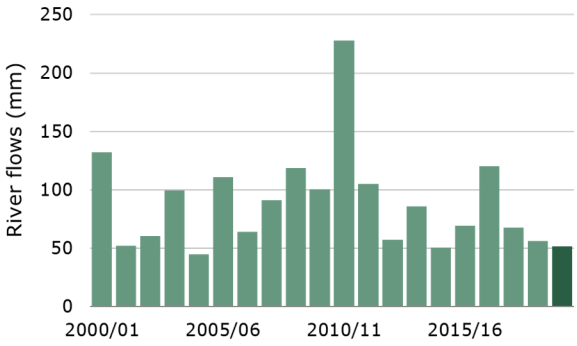


Biomass carbon emissions from bushfire in 2019/20 by local government areas.

30mill HECTARES burnt nationally

Water

National river inflows were below average in 2019/20 and lower than the previous year, mainly because of drier conditions in northern Queensland.

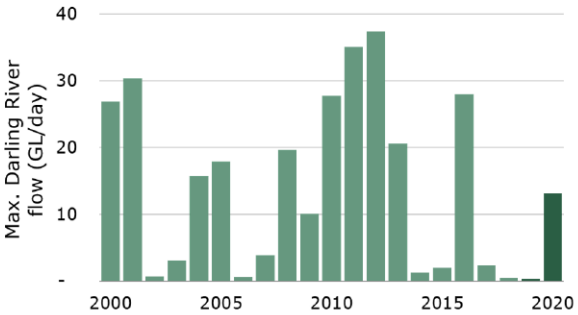


River inflows by financial year

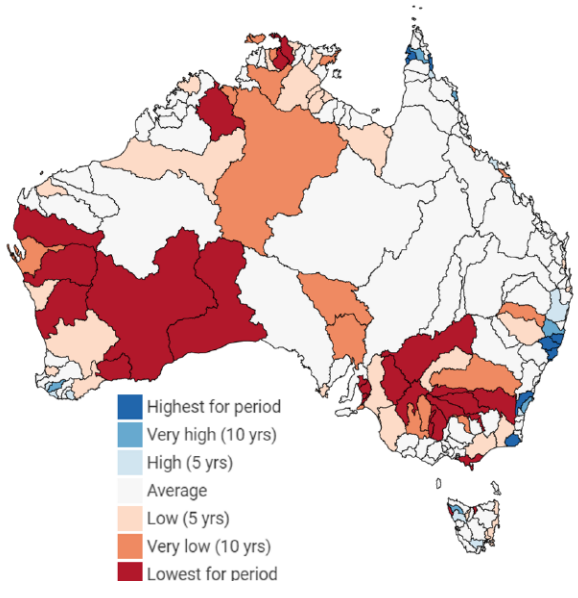
River flows increased along the southeast coast and in the Murray-Darling Basin. Darling River flows in 2020 were the highest since 2016 due to high flows in March 2020.

The extent of wetland flooding during 2019/20 was very low. Some flooding occurred in the first half of 2020 in the northern Murray-Darling Basin and along the east coast. Very dry wetland conditions persisted in the Murray Basin and across much of WA.

+8% MURRAY-DARLING reservoir storage



Maximum daily flows by year (including 2020 to date) in the Darling River at Wilcannia



Wetland inundation in 2019/20 by catchment

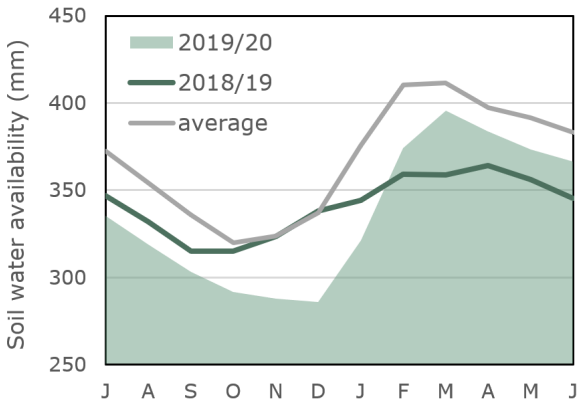
Reservoir water storage in the Murray-Darling Basin improved from 36% to 44% of capacity (1,922 GL) between end of June 2019 and 2020, respectively. This included a 9% to 17% (344 GL) increase in public storages in the Northern Basin. The Ord scheme water supply in northern Australia fell from 55% to 38% over the same period.

Storage in urban water supply systems increased for Sydney (52% to 81%) and Melbourne (50% to 64%) while remaining stable for Brisbane (66%), Canberra (55%) and Perth (41%).

Soils

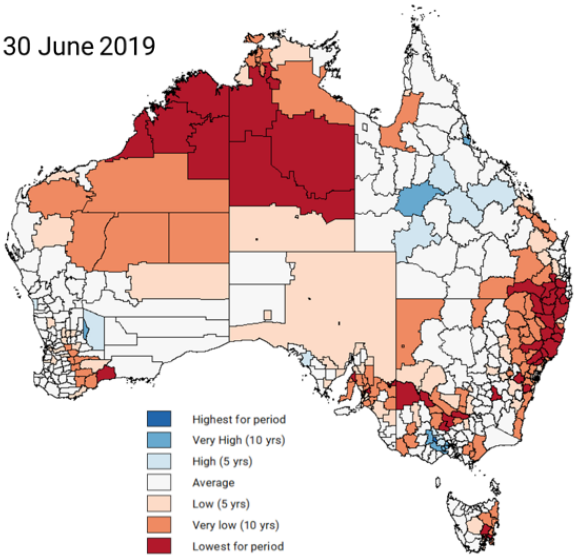
National soil water availability was below average throughout the year but approached average conditions from March 2020 onwards. Very low to extremely low soil water availability across most of north-western and south-eastern Australia in June 2019 had eased by June 2020 due to good rains in 2020.

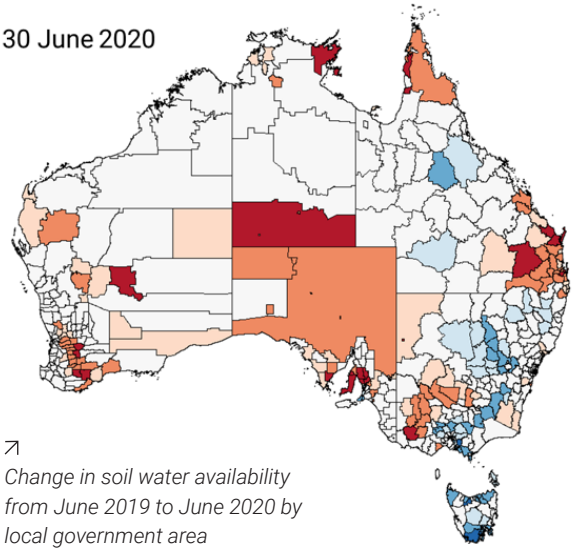
Dry conditions persisted in southeast Queensland, South Australia, and isolated parts of WA, NT, NSW and Victoria.



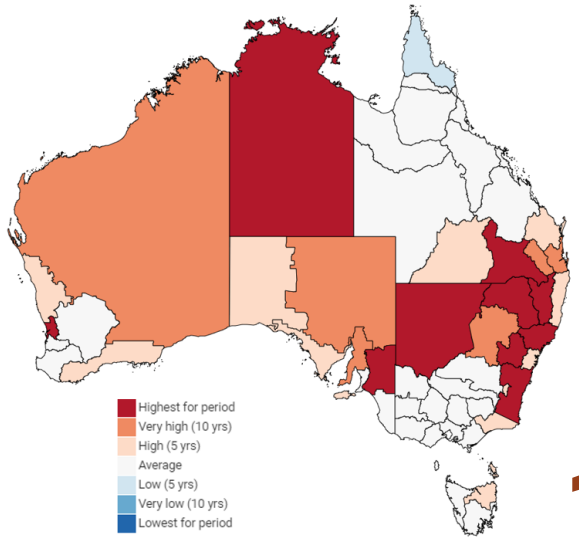
Monthly national soil water availability in 2019/20 compared to 2018/19 and 2000–2019 average (median) values

Soil protection by vegetation and litter during 2019/20 was the worst since at least 2000 in NT and large parts of southeast Australia.





Change in soil water availability from June 2019 to June 2020 by local government area

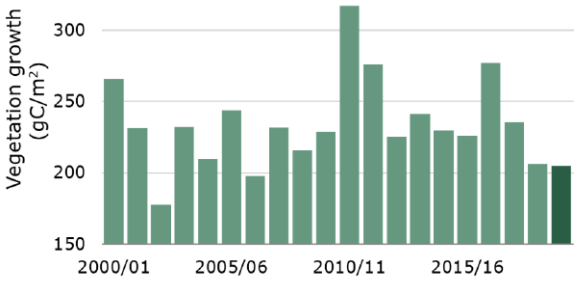


Soil exposure in 2019/20 by natural resources management region

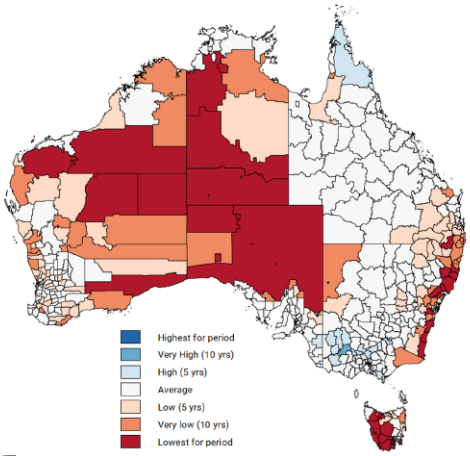
14%
local gov areas in
DROUGHT

Vegetation

National vegetation growth conditions during 2019/20 were slightly worse than the previous year and the worst since 2006/07. This was mainly due to poor growth conditions in inland Australia and along the East coast.



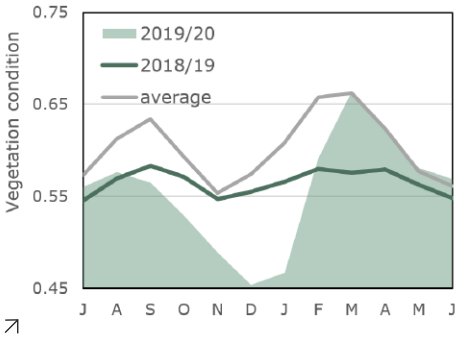
Vegetation growth by financial year



Growth conditions in 2019/20 by local government area

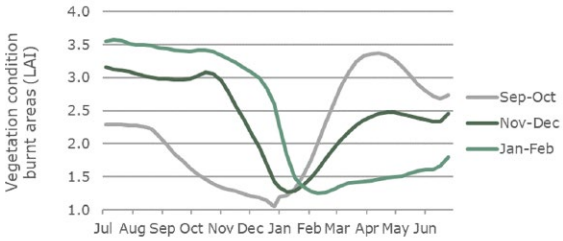
Vegetation reached its worst national average condition (leaf area) in December, improved from February onwards and remained very close to average since.

Average vegetation condition across the areas in southeast Australia that were burnt in 2019/20 decreased between September and February as fires occurred. Vegetation started to recover thereafter, with 43% of the lost cover regrown by June 2020.



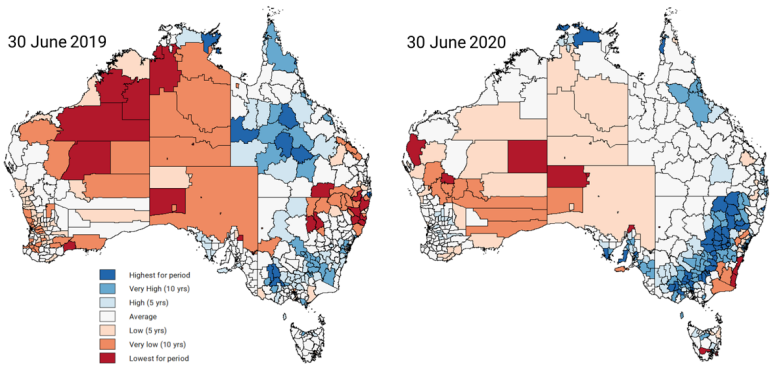
Monthly national vegetation condition in 2019/20 compared to 2018/19 and 2000–2019 average (median) values

43%
of burnt vegetation
REGROWN



Vegetation recovery in areas burnt at different stages during the 2019/20 fire season.

Vegetation condition in late June 2020 was very good across the south-eastern cropping regions and average in southwest WA. Vegetation condition remained below average in the southern NSW/Gippsland region due to lingering fire impacts and in the arid inland due to ongoing dry conditions.



Change in rank of vegetation condition (leaf area) from June 2019 to June 2020 by local government area.

The **ANU Centre for Water and Landscape Dynamics** develops new methods to measure, monitor and forecast climate, water availability and landscape conditions. Our solutions often combine large amounts of data from satellites and sensor networks with field research, biophysical modelling and machine learning.

TERN is Australia's land ecosystem observatory, measuring key terrestrial ecosystem attributes over time from continental scale to field sites at hundreds of representative locations and providing model-ready data that enable researchers to detect and interpret changes in land ecosystems.

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