



Data reflected in this summary of mosquito-borne disease in the Pilbara Region is taken from the Western Australia Notifiable Infectious Disease Database (WANIDD) and includes enhanced surveillance data collected by Population Health Units and Local Governments. (Only locations with notified cases of disease are shown in tables and figures).

Ross River virus (RRV)

There were 9 RRV cases notified by lab during this quarter. This includes 7 that were also notified by doctor. Follow up data is available for 3 of these cases. During 2018/19 there was a total of 14 cases reported. The number of cases has been significantly below the long term monthly mean for all months except September 2018 and June 2019 when it was within the normal range.

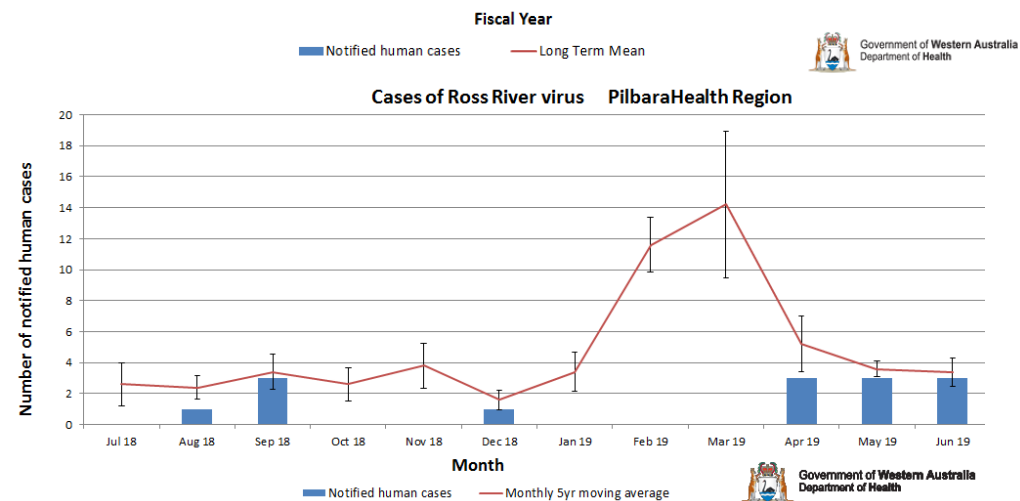
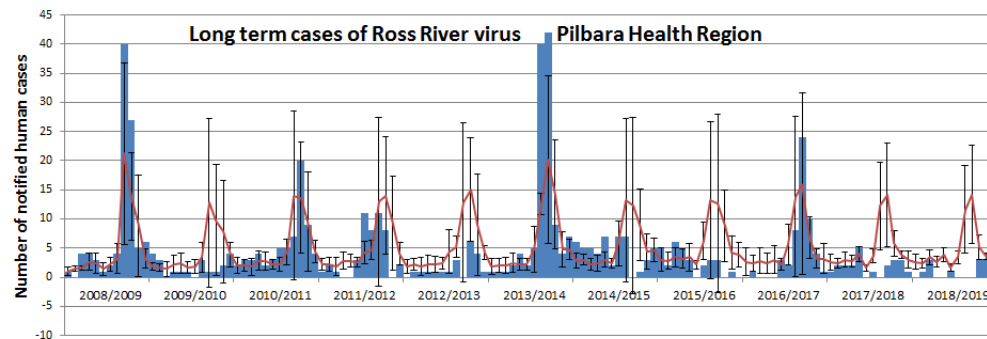
| RRV 2019 | Apr | May | Jun | Total |
|-------------------------|----------|----------|----------|----------|
| Pilbara | 3 | 3 | 3 | 9 |
| Ashburton (S) | 1 | 1 | | 2 |
| PANNAWONICA | 1 | 1 | | 2 |
| East Pilbara (S) | 1 | 1 | | 2 |
| MARBLE BAR | | 1 | | 1 |
| NEWMAN | 1 | | | 1 |
| Port Hedland (T) | 1 | | | 1 |
| PORT HEDLAND | 1 | | | 1 |
| Karratha (C) | | 1 | 3 | 4 |
| BAYNTON | | 1 | 1 | 2 |
| KARRATHA | | | 1 | 1 |
| POINT SAMSON | | | 1 | 1 |
| Total | 3 | 3 | 3 | 9 |

Barmah Forest virus (BFV)

There was one BFV case reported during this quarter being the only case for 2018/19. No follow up data are available. This is well below the long term monthly mean which is not more than one BFV case per month.

Murray Valley encephalitis (MVE) and Kunjin (also known as WNV_{KUN}) viruses

There have been no cases of MVE or Kunjin virus disease reported in WA during this quarter. The most recent MVE case was reported in June 2018 from a patient who had travelled to the Pilbara and Kimberley regions and NT. The most recent Kunjin activity in WA occurred between April to August in 2017, with five confirmed cases being reported from the Kimberley region.

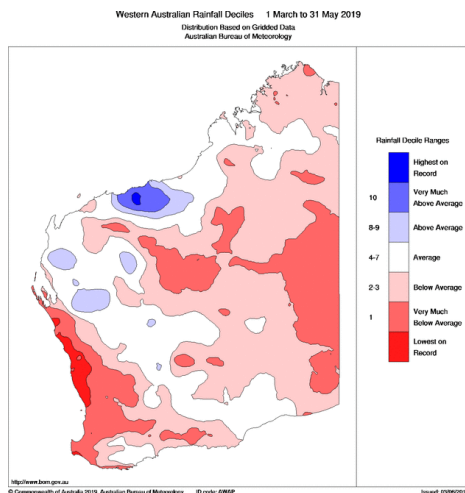


| BFV 2019 | Apr | May | Jun | Total |
|-------------------------|-----|----------|-----|----------|
| Pilbara | | 1 | | 1 |
| East Pilbara (S) | | 1 | | 1 |
| NEWMAN | | 1 | | 1 |
| Total | | 1 | | 1 |

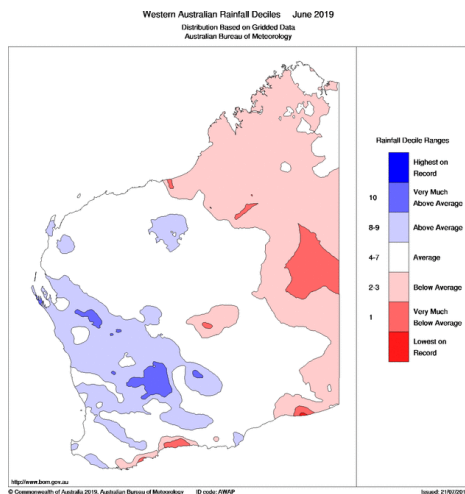


Data reflected in this summary of mosquito-borne disease in the East Metro Region is taken from the Western Australia Notifiable Infectious Disease Database (WANIDD) and includes enhanced surveillance data collected by Population Health Units and Local Governments. (Only locations with notified cases of disease are shown in tables and figures).

Relative Rainfall Mar – May (Autumn) 2019



Relative Rainfall June 2019



Serologically confirmed doctor-notified and laboratory reported cases of Ross River virus disease each month in WA, July 2018 - June 2019

Compiled by the Medical Entomology, WA Department of Health

| REGION | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Total | Crude | Age std |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-------|---------|
| KIMBERLEY | 3 | 4 | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 2 | 1 | 17 | 47.1 | 58.1 |
| PILBARA | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 3 | 3 | 14 | 22.8 | 17.2 |
| GASCOYNE | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10.4 | 11.2 |
| MIDWEST | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 5 | 8.1 | 7.0 |
| WHEATBELT | 2 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 4 | 14 | 20.2 | 18.9 |
| METRO | 7 | 8 | 12 | 16 | 13 | 7 | 23 | 15 | 13 | 16 | 21 | 11 | 162 | 9.4 | 9.1 |
| PEEL | 5 | 7 | 13 | 10 | 5 | 8 | 18 | 9 | 9 | 11 | 6 | 5 | 106 | 39.8 | 38.2 |
| LESCHENAULT | 1 | 2 | 2 | 3 | 3 | 2 | 3 | 1 | 6 | 0 | 1 | 4 | 28 | 38.0 | 36.9 |
| GEOGRAPHE | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 4 | 1 | 0 | 2 | 25 | 44.6 | 44.2 |
| ELSEWHERE SW | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 6 | 12.7 | 11.3 |
| SOUTHWEST | 8 | 11 | 18 | 16 | 12 | 12 | 25 | 12 | 20 | 13 | 7 | 11 | 165 | 37.2 | |
| GREAT SOUTHERN | 1 | 1 | 0 | 2 | 0 | 2 | 3 | 1 | 2 | 0 | 1 | 1 | 14 | 23.1 | 20.9 |
| GOLDFIELDS-ESPERANCE | 0 | 1 | 2 | 1 | 1 | 2 | 0 | 0 | 2 | 1 | 0 | 1 | 11 | 43.2 | 44.4 |
| WA UNDETERMINED | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| INTERSTATE | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 2 | 0 | 2 | 0 | 1 | 11 | | |
| WA TOTAL (does not include interstate) | 22 | 27 | 36 | 36 | 31 | 24 | 53 | 29 | 40 | 35 | 37 | 33 | 403 | | |

1) Data current as at 23/07/2019 - table may vary from previous or future versions due to inclusion of additional enhanced surveillance data Communicable Disease Control Directorate from participating pathology laboratories); Enhanced Surveillance Data (comprising case follow-ups from Environmental Health Officers; patient interviews; Doctor's

3) Month of onset and suburb/town of exposure determined from Enhanced Surveillance Data where available, and from Doctor's notifications or laboratory reports where not available

4) Data varies from official Western Australian Notifiable Infectious Diseases Database records due to inclusion of Enhanced Surveillance Data suburb" - (e.g. City of Mandurah unknown)

6) Where a place of exposure occurs in a suburb that carries over 2 Local Governments and it is not clearly defined which local government it occurred in, the case has been entered in the Local Government where the largest portion of the suburb occurs

7) This information is the intellectual property of the Biological and Applied Environmental Health Hazards unit of the WA Department of Health and may not be used for any purpose without prior permission



El Niño conditions are associated with a decrease in rainfall and tidal activity.

La Niña brings wetter and warmer than normal weather which can increase mosquito breeding and mosquito borne diseases.

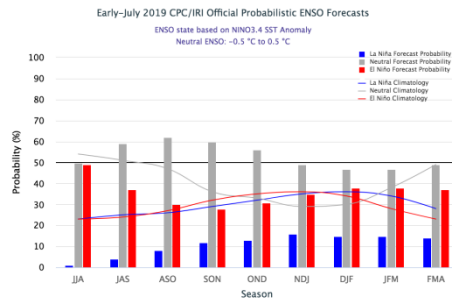
Positive Indian Ocean Dipole brings below average winter–spring rainfall, above average temperatures.

Australian Bureau of Meteorology (BOM) ENSO issued 9 July 2019

The **El Niño–Southern Oscillation (ENSO)** is currently **neutral** - neither El Niño nor La Niña. While the possibility of El Niño can't be completely ruled out for 2019, the tropical Pacific Ocean is expected to remain in an ENSO-neutral phase over the coming months meaning the **ENSO Outlook remains at INACTIVE**. Model outlooks indicate a **positive Indian Ocean Dipole is likely to be the dominant climate driver for Australia's weather for much of the rest of 2019**, meaning an increased likelihood of a drier than average winter–spring.

International Research Institute for Climate and society IRI ENSO Forecast issued 11 July 2019

The official CPC/IRI outlook, still with an **El Niño advisory**, calls for a 60% chance of ENSO-neutral by Jul-Sep, and neutral remains the most likely category through northern hemisphere fall and winter.



For further information contact

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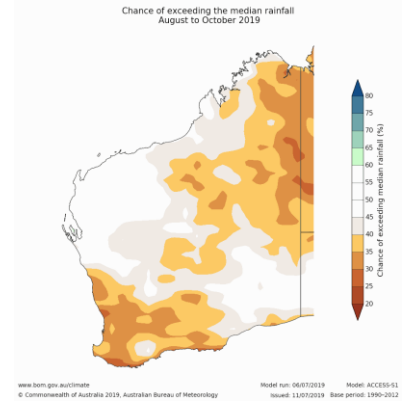
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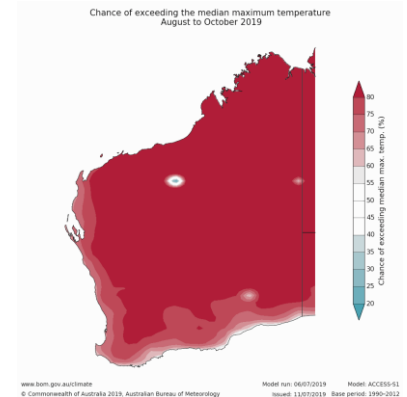


Australian BOM Climate Outlook issued 11 July 2019

A drier than average August to October is likely for large parts of the country, including the northern half of Australia, southwest WA. The month of August is likely to be drier for the far southwest of WA.



Warmer August to October days likely nationwide. Chances are very high (greater than 80%) for the northern half of the country and inland southern WA.



Nights are also likely to be warmer than average for much of Australia. Historical accuracy for August to October maximum temperatures is moderate to high for most of Australia, except for parts of the Pilbara in WA. Minimum temperature accuracy is moderate for most of Australia but patchy across the southeast quarter and western WA.

