River flows and climate over time

Healthy Floodplains Project

August 2021

Climate in the northern Basin

There is evidence that the Barwon-Darling River ran dry for significant periods before there was any floodplain development. There is also evidence to indicate that the practice of floodplain harvesting is not making this worse. While development can affect river flows, climate causes the river to run dry for extended periods.

Natural climate cycles

Our climate has wet and dry cycles, which affect the flow of the Barwon-Darling River

- 1900s – 1950s: drier than average
- 1950s – 1990s: wetter than average
- Since the millennium drought: drier than usual.

It's normal for the river to stop flowing sometimes

A constantly flowing river is not normal for the Barwon-Darling region. The river stopped flowing for extended periods even before there were large dams and significant agricultural water use upstream. There is a relationship between the river drying and dry climatic periods. When we don't get a lot of rain, the river is more likely to stop flowing.

Figure 1. Worst five-year droughts in the Barwon-Darling historical record

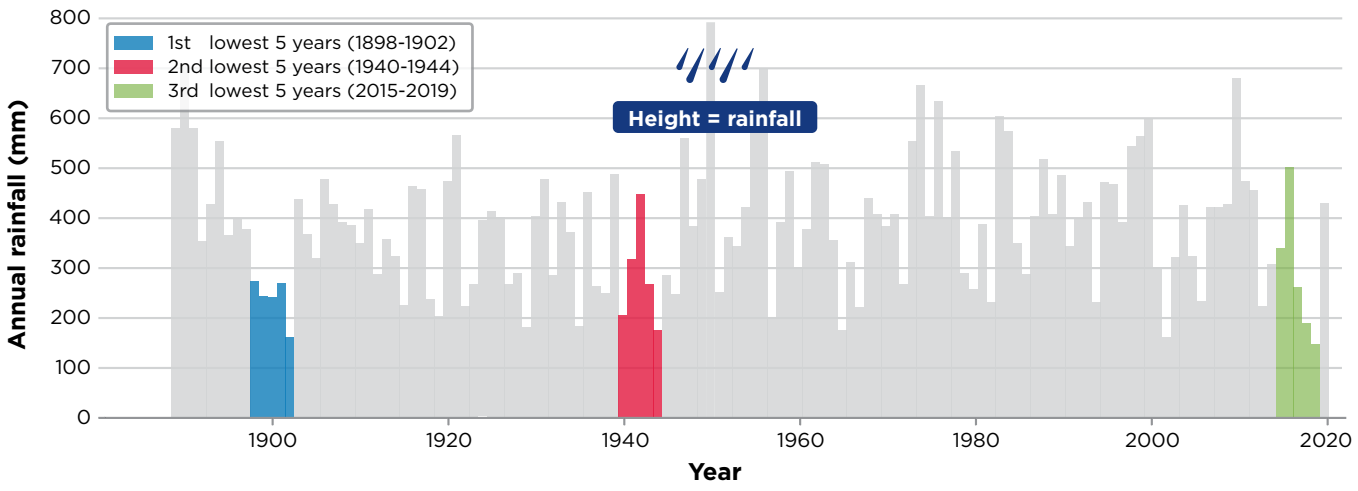
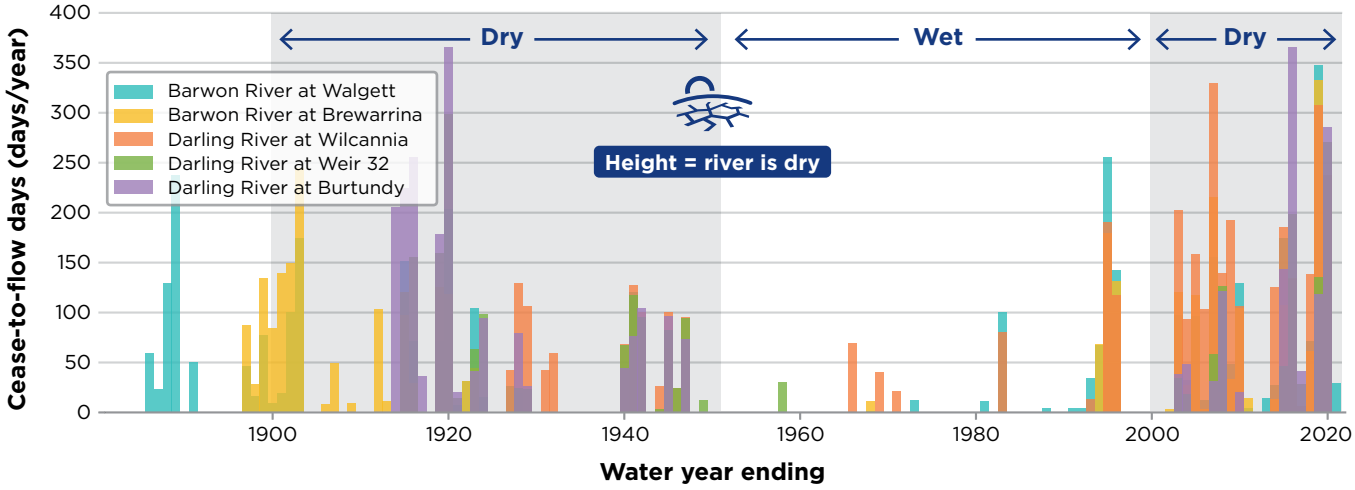


Figure 2. Barwon-Darling cease to flow days at Walgett, Brewarrina, Wilcannia, Menindee and Burtundy in the historical record



You can't harvest a floodplain without a flood or significant rain

Floodplain harvesting can only take place following very heavy rainfall that causes either localised or widespread flooding.

Floodplain harvesting does not occur when rivers are dry.

Data analysis from the last 30 years also shows there is no evidence of floodplain harvesting drying rivers sooner or prolonging the length of time a river is dry. Floodplain harvesting is not causing rivers to dry downstream. Climate variability such as drought causes rivers to run dry.

Figure 2 shows wet and dry periods at locations within the Barwon-Darling system, each given a colour shown in the legend. In this chart, the height of the bars shows the length of time the rivers stopped flowing.

Implementing reform means more water downstream

It is important to implement the NSW Floodplain Harvesting Policy to bring floodplain harvesting into the licensing framework and ensure it can be managed within the valley scale legal limits. Once licensed, floodplain harvesting can only take a portion of flood flows, leaving more water to support the floodplains, rivers and creeks.

Benefits of licensing floodplain harvesting

Modelling and ecological assessments show that implementation of the policy will deliver significant benefits to water birds, native fish and native vegetation across the northern Basin floodplains.

Table 1. Within valley flow and environmental benefits

Valley	**Additional water** (GL/year)	**Native vegetation** (meeting environmental watering requirements*)	**Waterbirds** (meeting environmental watering requirements*)	**Flows across the floodplain during floods** (mean annual volume*)
NSW Border Rivers	5.5	46% increase	24% increase	18% increase
Gwydir	52.9	32% increase	56% increase	13% increase
Macquarie	1.8	4% increase	9% increase	0.2% increase

* Average change across multiple breakout zones in each valley