

Analysis of proposed changes to rules for the Upper Bega–Bemboka Water Source

This fact sheet summarises how proposed changes to cease-to-pump rules could affect productivity.

The NSW Department of Planning and Environment is considering options for changing the cease-to-pump threshold for the Upper Bega–Bemboka Rivers Water Source. The cease-to-pump threshold is the level of river flow at which licensed users must stop pumping water. We propose changing the threshold to better protect freshwater riverine ecosystems.

Currently, the cease-to-pump rule applies when flows in the Bega River at Kanoona (gauge 219032) are below 2 megalitres (ML) per day. The department is considering several alternative cease-to-pump thresholds. The options for changing the rule will increase the number of cease-to-pump events (the occasions when water users must stop pumping) and make them last longer. Because of this, they will affect access to water in the region, which is primarily used to irrigate pasture for dairy farming.

This fact sheet summarises our analysis of how the cease-to-pump (CTP) options could affect production and income for water-using industries in the Upper Bega–Bemboka area.

How we analysed potential effects

To estimate the potential effect the proposed options for changing the rule would have on water-using industries, we gathered data about water use in the region. We analysed how the rules would affect production and income in water-using industries. This process involved:

1. **modelling river flow** to understand how the rule changes would affect the number and duration of CTP days each year (on average)
2. **analysing land, pasture type and water use in the Bega–Bemboka area** to understand the potential effects of CTP options on irrigation and crops
3. **analysing costs and incomes of water-using industries in the region** and how these might change in response to the CTP options.

What the analysis showed

We analysed a range of scenarios, based on the:

- potential land area affected by the rule change
- amount of feed held in storage
- duration of a CTP event.

We used this information to estimate the potential costs of pastures producing less because of each rule change.

For each scenario and rule option, we estimated the change in productivity compared to the current CTP rule. We looked at effects for CTP events longer than 7-days and CTP events longer than 30-days. The analysis shows potential effects range from a total productivity loss of \$240,000 under the 5 ML scenario to \$1,200,000 under the 10 ML scenario for the whole Upper Bega–Bemboka Rivers Water Source.

Under the 5 ML scenario, estimating the cost for modelled flow results showed that the upper-limit cost of an 8-day CTP event would be \$240,000 in current dollars for the whole Upper Bega–Bemboka Rivers Water Source. In the modelled flow results shown in Table 1, a CTP event lasting longer than 7-days occurs twice in 130-years.

Table 1 shows the estimated upper-limit total cost when CTP rules reduce the productivity of pastures. These are modelled outcomes for the Upper Bega–Bemboka catchment area, under different CTP scenarios.

Table 1. Modelled CTP (ML/day) for 130 years

CTP Rules	Current (2 ML)	5 ML	7 ML	10 ML
Number of years with a CTP 'day'	54	58	61	72
Number of CTP 'days' for 130-year period	1,007	1,925	2,273	2,369
Number of times CTP 'days' are greater than 7 consecutive days	0	2	55	93
Median length of events greater than 7 consecutive days	0	8	12	14
Upper-limit cost estimate of median length greater than 7 consecutive days	n/a	\$240,000	\$420,000	\$530,000
Number of times CTP 'days' are greater than 30 consecutive days	0	0	2	13
Median length of events greater than 30 consecutive days	0	0	34	39
Upper-limit cost estimate of median length greater than 30 consecutive days	n/a	n/a	\$1,100,000	\$1,200,000

Data and assumptions used in the analysis

To complete this analysis, we got data from a range of sources and verified it using multiple sources, where possible. The data and its sources are shown in Table 2.

Table 2. Key data and assumptions used in the analysis

Input/assumption	Source/method
Main water use: irrigation of grazing pasture for dairy cattle and irrigated cropping	Local Land Services, 2017 Land use map (datasets.seed.nsw.gov.au), literature review
<ul style="list-style-type: none"> • Pasture type: kikuyu and ryegrass • Soil type: sandy granite-based soil 	Local Land Services, literature review, NSW soil map (environment.nsw.gov.au/eSpade2WebApp)
Irrigation cycle: crops are watered every 6 days	Local Land Services, literature review
Average income from milk production: \$15/ha/day	Derived from Dairy Farm Monitor Project 2020–21 Annual Report – NSW South information
Average cost of purchased feed: \$6.50/ha/day	Derived from Dairy Farm Monitor Project 2020–21 Annual Report – NSW South information
<ul style="list-style-type: none"> • Upper limit total affected land: 1,600 ha • Upper limit feed assumption: feed is purchased for all days below pasture productivity of 80% 	Water Licensing System database, 2017 Land use map (datasets.seed.nsw.gov.au) Assumption based on historical income and climate data
Behaviour of irrigators: Farmers will accept a drop in productivity to 80% before buying feed to maintain a stable income level	Analysis of 10-year dairy farm income and feed costs in the Dairy Farm Monitor Project 2020–21 Annual Report (NSW South data) and Bureau of Meteorology rainfall data

More information

The department will publish the detailed report on the effect on productivity on [the Water pages of the department's website](#).

The report includes details on the productivity assessment methodology and a full list of assumptions and sources.