

FACT SHEET

SFE State Water Macquarie Index

The SFE State Water Macquarie Index includes two State Water storages in the Macquarie Valley - Windamere Storage near Mudgee and Burrendong Storage near Wellington. The following table sets out the capacities of these two storages.

Storage	Capacity (ML)	Active Capacity (ML)	Inactive Capacity (ML)	Percentage of Total Index
Windamere	368,120	366,990	1,130	24%
Burrendong	1,188,000	1,154,270	33,730	76%
Total	1,556,120	1,521,260	34,860	100%

The 'Capacity' is the volume of the storage at full supply level. The 'Active Capacity' is the volume of storage between the full supply level and the lowest outlet works. The 'Inactive Capacity' is the volume of storage below the lowest outlet works that is normally not available.

The Methodology to Calculate the SFE State Water Macquarie Index

The SFE State Water Macquarie Index is calculated each day as the sum of the active storage, in each storage, divided by the total active capacity.

$$\text{SFE State Water Macquarie Index} = \frac{\text{Sum of the active storage volumes}}{1,521,260\text{ML}} \times 100\%$$

The 'active storage volume' is the volume on the day less the inactive capacity. When any storage drops below the inactive capacity, that active storage is said to be zero. This may occur in droughts when the active storage is emptied and the remaining inactive storage continues to evaporate. When any storage exceeds the full supply level, the active storage is set to 100%. This occurs during floods when the storage 'surcharges' and flows begin over the spillway.

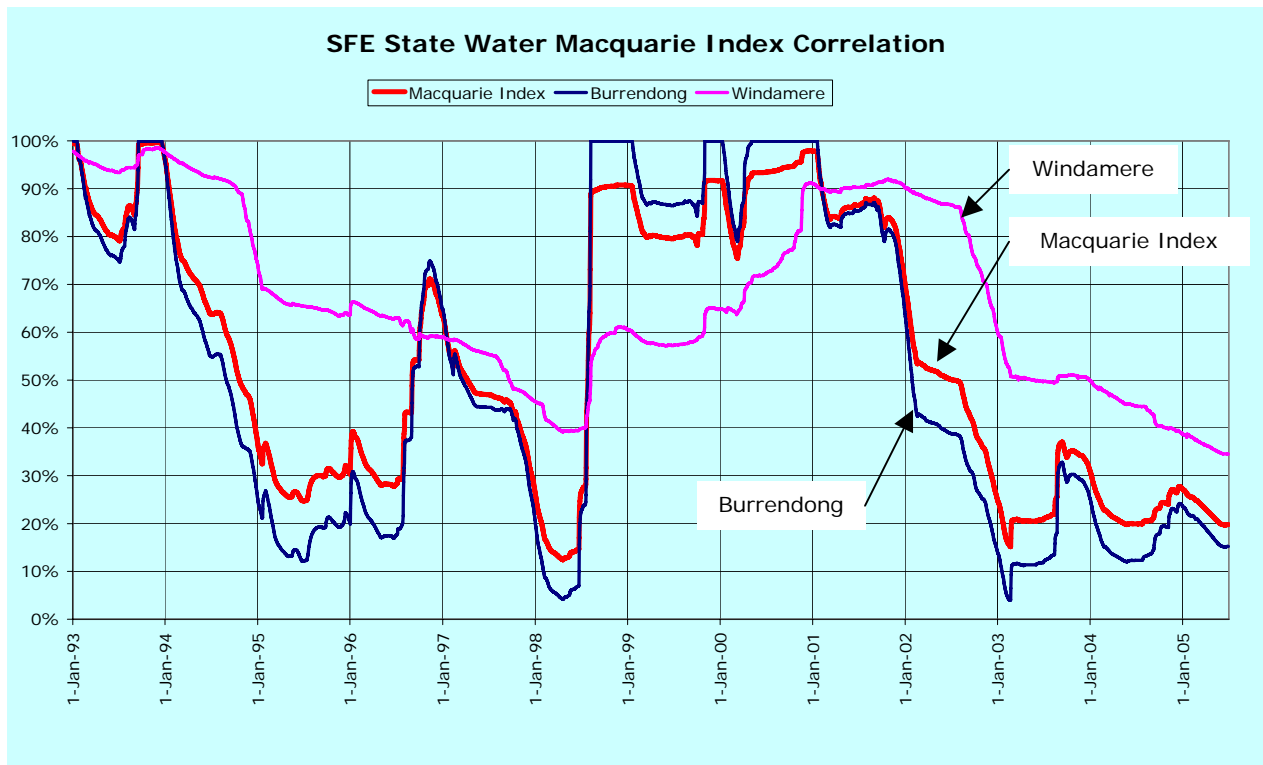
The Index does not have a direct correlation with the amount of water made available to irrigators. However, allocations are likely to be high when the Index is high and low when the Index is low.

The Index and any possible futures contracts do not represent the physical delivery of water or the use of water.

SFE State Water Macquarie Index Correlation

The following chart shows the historic behaviour of the individual storages against the SFE State Water Macquarie Index over the period 1 January 1993 to 30 June 2005.

Note: charts are best viewed in colour



The chart shows:

- There were good climatic seasons in 1993, 1996, and 1998-2001.
- There were poor climatic seasons in 1994, 1995, 1997, 2002-2005.
- Windamere and Burrendong are operated together for the whole Cudgegong-Macquarie Valley.
- Water is only released from Windamere to Burrendong in extended dry periods such as the end of 1994/95, 1997/98 and 2002/03. These periods correspond with lower index values as both storages are emptying.
- The Index provides a better description of the overall seasonal conditions and water availability than the active storage capacity figures for either the Windamere or Burrendong storages by themselves.
- Burrendong has a stronger influence on the Macquarie Index than Windamere because Burrendong is a larger storage.
- The Index only rises to very high levels, and falls to low levels, when both Burrendong and Windamere are full, or low.

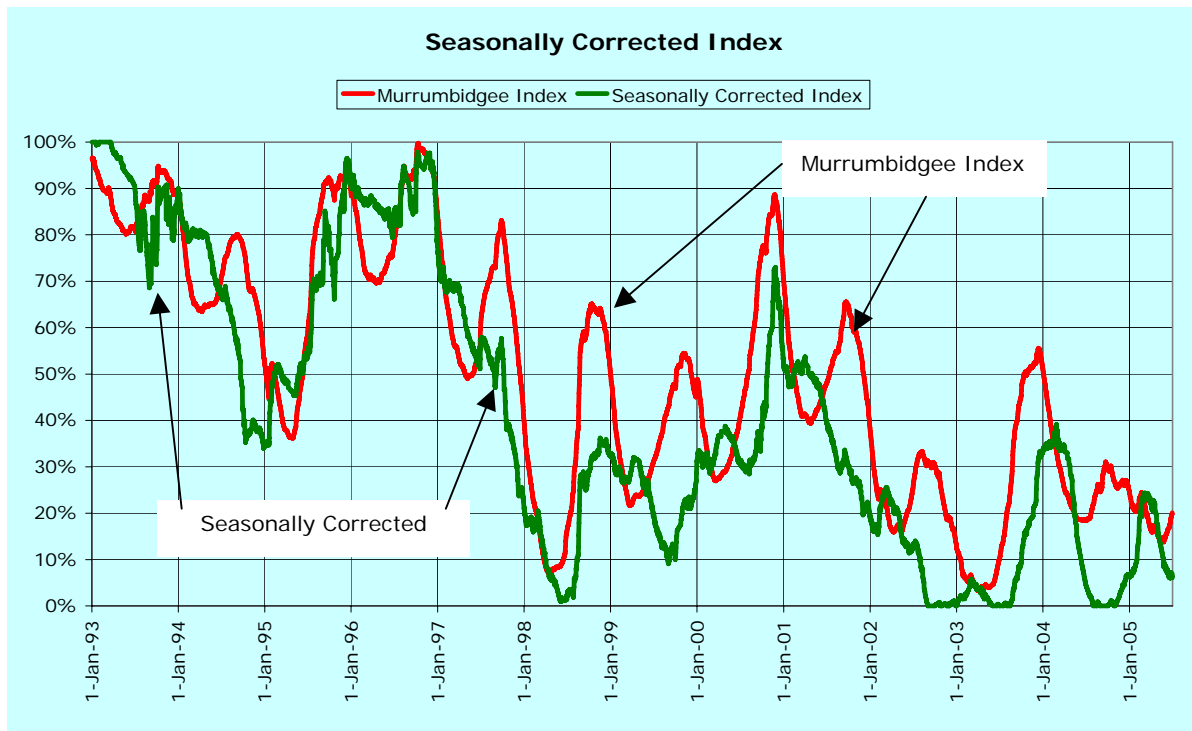
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An Example of Seasonal Correction

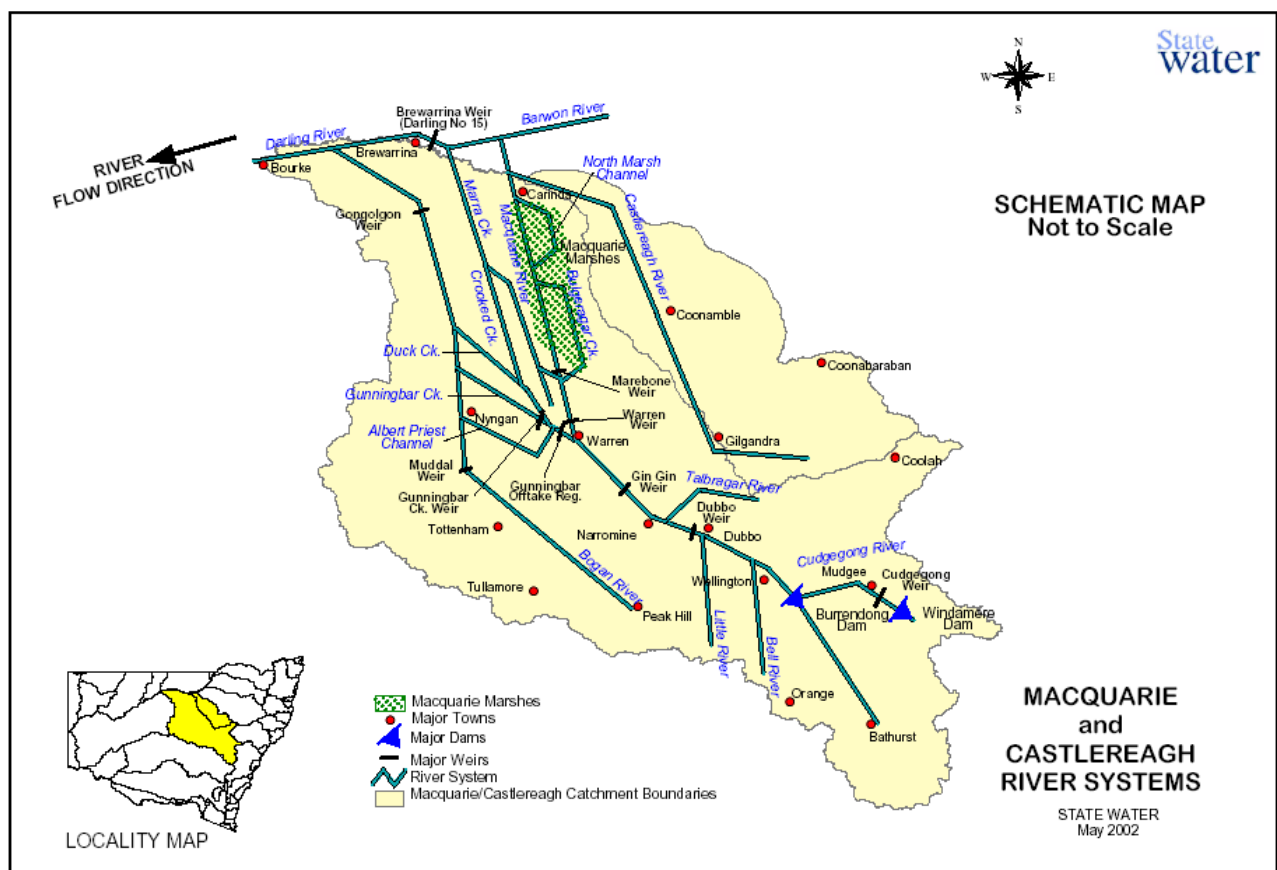
The following chart shows the Murrumbidgee Index and the Seasonally Corrected Index for the period 1 January 1993 to 30 June 2005.



- The red “Murrumbidgee Index” plots the combined storage of Burrinjuck and Blowering Storages, expressed as a percentage of the combined storage capacity.
- The green “Seasonally Corrected Index” ranks the storage index as a percentile exceedance for each day. The Seasonally Corrected Index tells whether the storage index is higher than normal (corrected indexes of above 50%) or lower than normal (corrected indexes of less than 50%).
- For example in late 1998 the storage index peaked at around 65%, while the Seasonally Corrected Index was about 35%. That is, in the latter months of the year a storage index of 65% is less than normal and quite low. This storage index ranks with only 35% of years expected to be lower than this.
- As a general rule when the storage index is high the seasonally corrected figures will also be high and when the Index is low so are the seasonally corrected figures.
- The figures for 1993 and 1996 are amongst the highest expected, with Seasonally Corrected Indexes of more than 90%. While 1998 and 2002 to 2004 have had periods as low as will ever be expected to be experienced, with Seasonally Corrected Indexes of zero%.

- There are some significant differences between the two indexes. There are some periods where the storage index rises and the seasonally corrected figures fall, and visa versa.
- In the period plotted above the storage index rises to some extent each winter, however the Seasonally Corrected Index falls in some winters. This occurs in 1994, 1999, 2001 and 2002. Although the storages were rising in these winters they were rising much less than average, primarily because these were drier winters. Therefore the Seasonally Corrected Index falls, showing that there were declining conditions in those winters.
- The Seasonally Corrected Index has the potential to communicate more information about the state of the regions seasonal conditions, that is whether it is much wetter or drier than average.

Schematic map relating to the Macquarie Index



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