FACT SHEET
SFE State Water Barwon Index

The SFE State Water Barwon Index includes six State Water storages, in three valleys. The following table sets out the capacities of these storages.

Storage	Valley	Capacity (ML)	Active Capacity (ML)	Inactive Capacity (ML)	Percentage of Total Index
Glenlyon	Border	254,310	254,150	160	9%
Pindari		312,000	311,920	80	12%
Copeton	Gwydir	1,361,720	1,343,230	18,490	48%
Split Rock	Namoi-Peel	397,370	394,210	3,160	14%
Keepit		425,510	418,960	6,550	15%
Chaffey		61,830	59,470	2,360	2%
Total		**2,812,740**	**2,781,940**	**30,800**	**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 Barwon Index

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

$$\text{SFE State Barwon Index} = \frac{\text{Sum of the active storage volumes} \times 100\%}{2{,}781{,}940\text{ML}}$$

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.

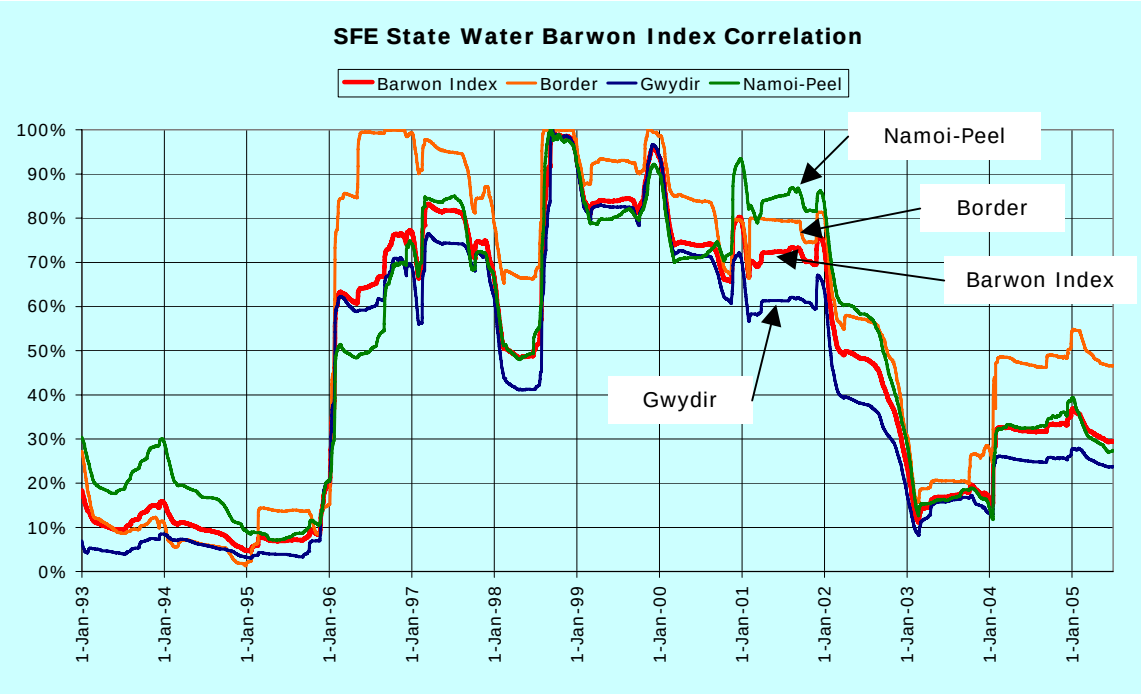
The Index does not have a direct correlation with the amount of water made available to irrigators. However, allocations are likely to be high when the Index is high and low when the Index is low.

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

SFE State Water Barwon Index Correlation

The following chart shows the historic behaviour of the SFE State Water Barwon Index against indexes for each of the valleys over the period 1 January 1993 to 30 June 2005.

Note: charts are best viewed in colour



The chart shows:

- There is a high degree of correlation between the valleys and the Barwon Index.
- There were very poor climatic conditions from 1993-1995.
- There were good climatic seasons from 1996-2001, peaking in 1998-1999.
- There were poor climatic seasons in 2002-2005, with 2003 being a very poor year.
- The Gwydir has a strong influence on the Barwon Index because it accounts for nearly half of the index. Therefore, the Index and the Gwydir figures track closely together.
- The Border only accounts for about 21% of the Index so does not have as large an influence on the Index. For example, in 1996 the Border was 100% for most of the year while the Barwon Index was around 70%.
- Pindari Storage was enlarged during the period plotted above. The enlarged storage first filled in 1996. This highlights one shortfall in looking at historical data, particularly over longer periods of 20 or 50 years where there have been new storages or changes to storages in that period.

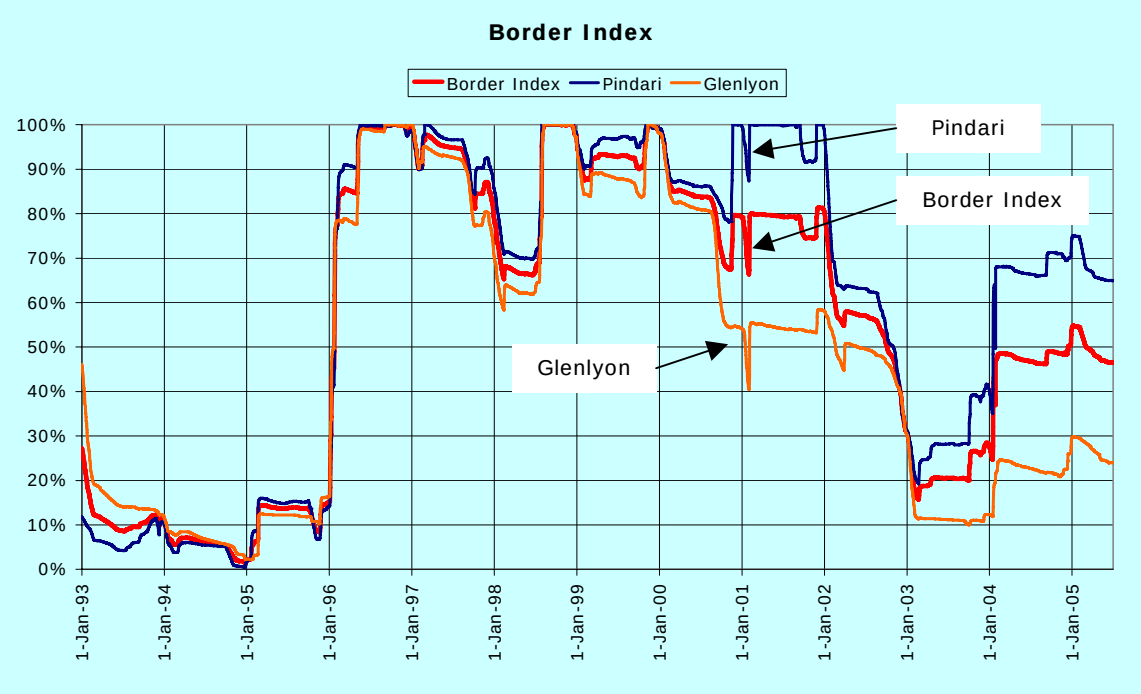
Individual Valley Indexes

State Water is not proposing to publish separate storage indexes for each valley. The high degree of correlation between the Indexes means that it may not be warranted to publish these indexes.

The following sections set out the possible make up of individual valley indexes.

Border Index

The following chart shows the historic behaviour of a Border Index against Pindari and Glenlyon Storages over the period 1 January 1993 to 30 June 2005.



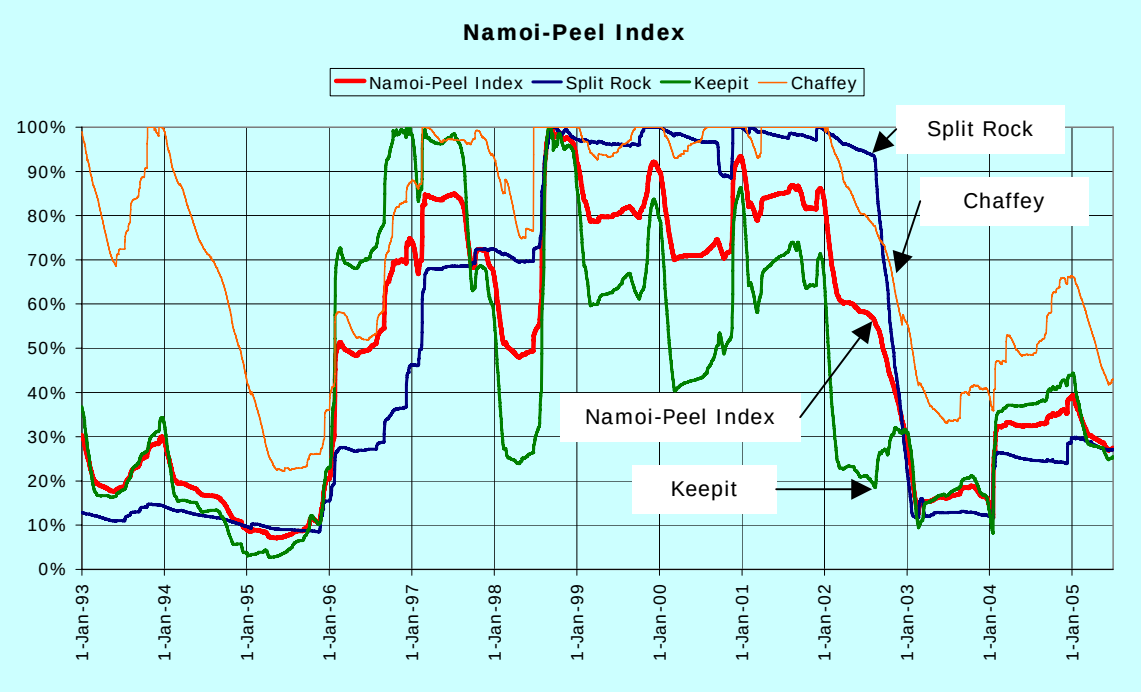
The chart shows:

- Glenlyon and Pindari operate in parallel to supply the Border Rivers. Glenlyon is operated under a joint state agreement for both NSW and Queensland, while Pindari is a NSW storage.
- Pindari Storage was enlarged during the period plotted above. The enlarged storage first filled in 1996.
- There is good correlation between the behaviour of the storages. Both storages rise and fall at the same time due to wet and dry conditions. Pindari rose more in 2004 than Glenlyon.
- In periods where the storages are at different levels such as June 2005, the Index gives a better indication of overall conditions in the valley than does either

storage. In this case conditions in the valley are not poor, but are variable, depending on where drought-breaking rains have occurred.

Namoi-Peel Index

The following chart shows the historic behaviour a Namoi-Peel Index against Keepit, Split Rock and Chaffey Storages over the period 1 January 1993 to 30 June 2005.



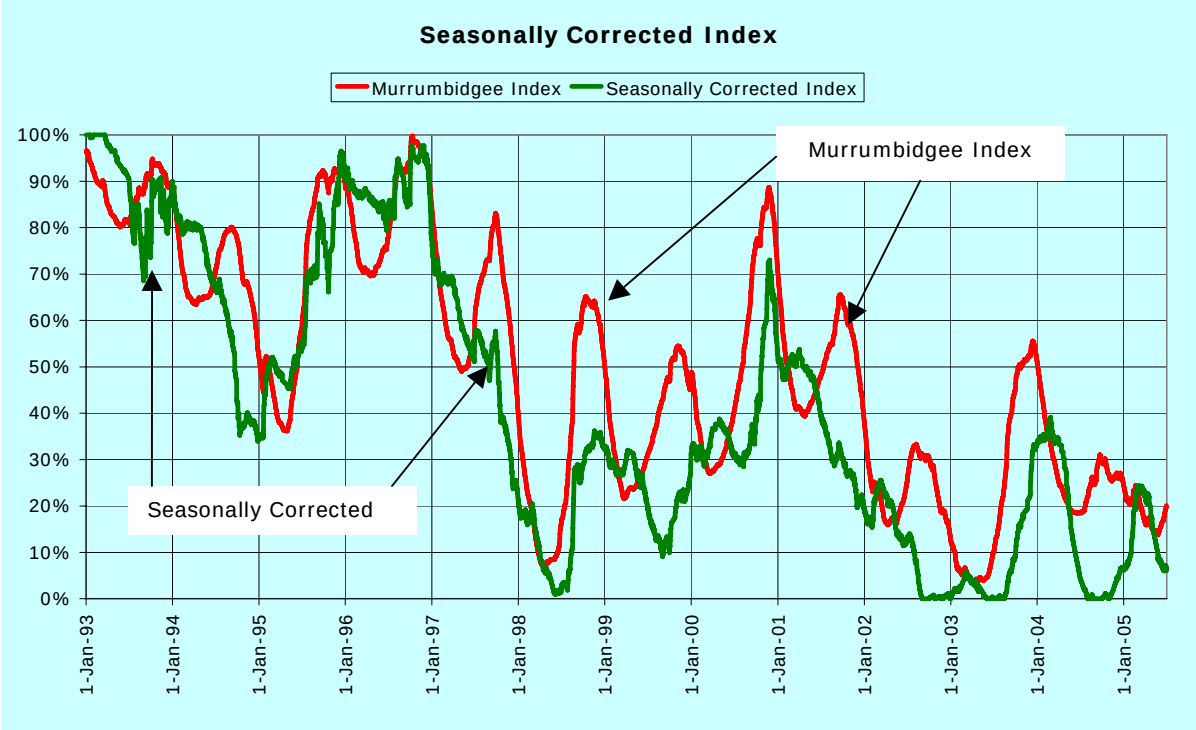
The chart shows:

- There were poor climatic seasons in 1993-1995.
- There were good climatic seasons in 1996-2002, with the exception of 1998.
- There were poor climatic seasons in 2003, with a slight improvement in 2004.
- Chaffey Storage is operated for the Peel Valley. Flows from the Peel contribute to the Namoi, but water is not made available from Chaffey Storage for the Namoi Valley.
- Chaffey only contributes about 7% to the Namoi-Peel index, so large changes in Chaffey's storage do not have a big impact on the Index. However, Chaffey is in the same valley and seasonal conditions around Chaffey do reflect the seasonal conditions in the wider valley.
- Split Rock and Keepit are operated together for the whole Namoi Valley.
- Water is only released from Split Rock to Keepit in extended dry periods such as 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 either the Split Rock or Keepit Indexes by themselves.
- The Index only rises to very high levels, and falls to low levels, when both Split Rock and Keepit are full, or low.

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 maps relating to the Barwon Index