



MURRAY SYSTEM

Drought Update

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In Brief

Rainfall: During the past three months, rainfall has been below average across the southern half of the Murray-Darling Basin. This continues a trend that has persisted for seven years, particularly in the Australian Alps from which a substantial proportion of the Murray system inflows are normally derived.

System inflows: In response to below average rainfall, Murray system inflows have remained very low. September inflows were 400 GL which is only a quarter of the long term September average of 1,610 GL and October inflows were 205 GL, which is less than one-sixth of the long term average of 1,390 GL. Monthly inflows for the Murray system have been below average for the last 37 consecutive months. The 2008-09 water year is currently tracking as the 7th driest in 117 years of records.

System storage: The volume of storage under MDBC control is 1,890 GL or 22 % of capacity, which is slightly higher than this time last year, but well below the October average of 6,020 GL. Unless there is a very significant improvement in water availability, current forecasts indicate that by autumn 2009, storage levels in the Murray system will again be very low. Elsewhere in the Basin, most storage levels also remain very low.

Outlook: The Bureau of Meteorology's 3 month outlook indicates neutral conditions for rainfall and a moderate to strong shift towards warmer than normal temperatures. This, combined with the fact that only 20 % of Murray system inflows normally occur in summer and autumn, indicate that the chances of a significant improvement in Murray system inflows during the coming months is low. Historical records also indicate that it is rare to have a significant improvement in Murray system inflows after a dry winter and spring.

Summer recreation and tourism along the Murray: Notwithstanding the drought, the Murray River remains a large water body offering diverse recreational opportunities. Although summer flows are expected to be lower than normal, most weir pools will be held close to full supply level, and this should provide plenty of opportunities for recreational and tourism activities along the river.

Rainfall and System Inflows

During August, September and October, below average rainfall was recorded across the southern half of the Basin (see Figure 1). This continues a trend that has persisted for seven years. The Bureau of Meteorology has reported that the last year in which there was widespread above average rainfall across inland eastern Australia, including the Murray-Darling Basin, was 2000. In particular, relatively dry conditions in 2007 and 2008 have combined with the severe drought year of 2006 to produce extreme rainfall deficits in the Australian Alps in north-eastern Victoria and southern NSW. This is a critical area as it is the region from which a substantial proportion of the Murray system inflows are normally derived.

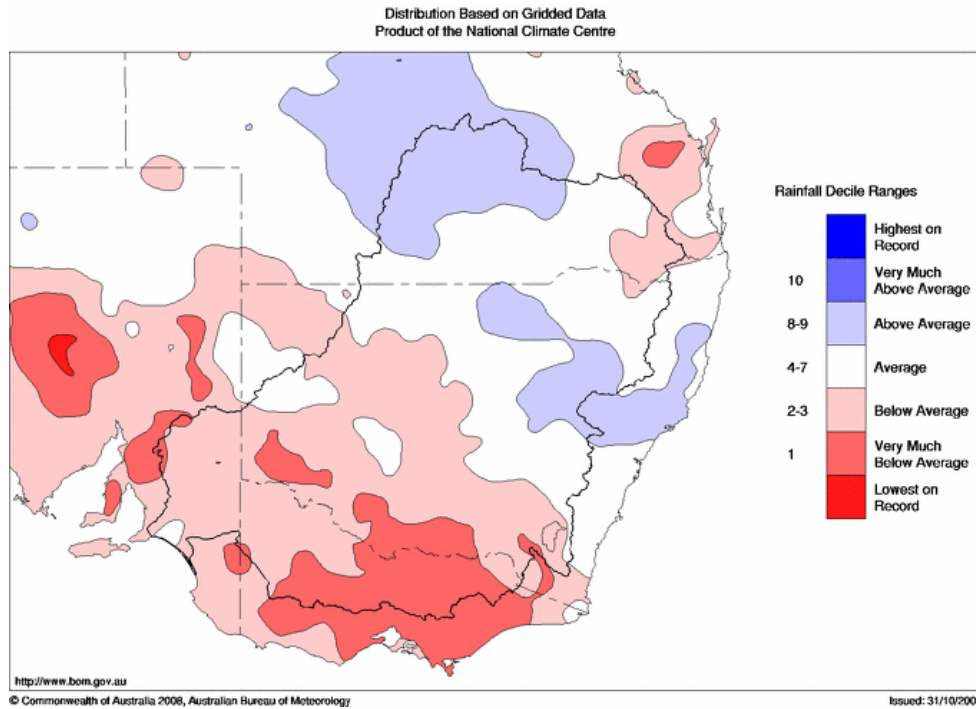


Figure 1. Murray-Darling Basin rainfall deciles, Aug - Oct 2008. (source: Bureau of Meteorology)

The Bureau of Meteorology has also reported that the last seven years has been a warm period in the Murray-Darling Basin, with Basin-wide maximum temperatures 1.11°C above the 1961-1990 average (see Figure 2).

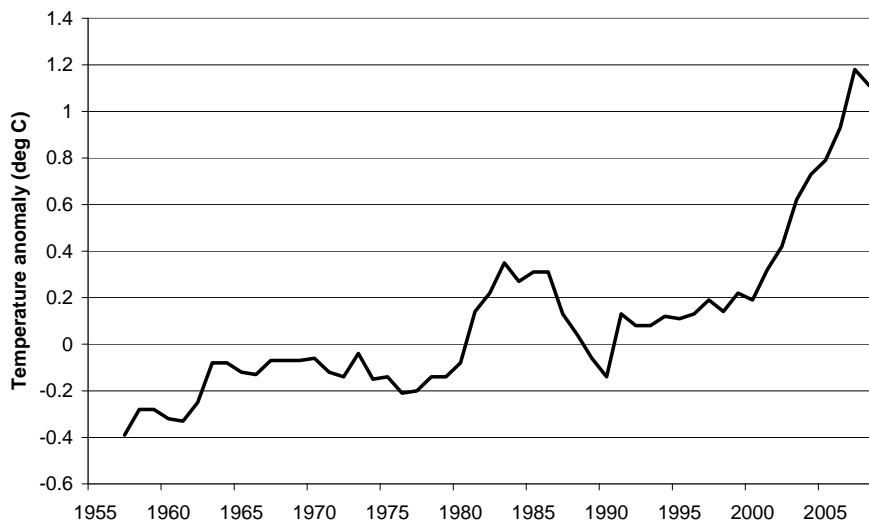


Figure 2. 7-year maximum temperature anomalies (differences from the 1961-90 average) for the Murray-Darling Basin. (source: Bureau of Meteorology)

In response to the below average rainfall, particularly in the alpine regions, Murray system inflows continue to track well below average (Figure 3). September inflows for the Murray system (excluding Snowy and Darling inflows) were only 400 GL. Although this is above the record low of 120 GL in September 2006, it is well below the long term September average of 1,610 GL. October inflows were 205 GL, compared to a long term average of 1,390 GL. Monthly inflows for the Murray system have been below average for the last 37 consecutive months.

For the months June to October 2008, total Murray system inflows were 1,300 GL, which is only 20 % of the long term average of 6,400 GL. The 2008-09 water year is currently tracking as the 7th driest in 117 years of records.

For the three years ending October 2008, Murray system inflows were 6,100 GL, which is almost half the previous three year minimum prior to this drought (11,300 GL in 1942 – 45) and less than a quarter of the long term average.

In the northern half of the Basin, there has been some good rainfall over the last few months and this has assisted dryland farmers. However, the rainfall has not been sufficient to produce significant runoff and streamflows in the Darling and its tributaries have generally remained very low.

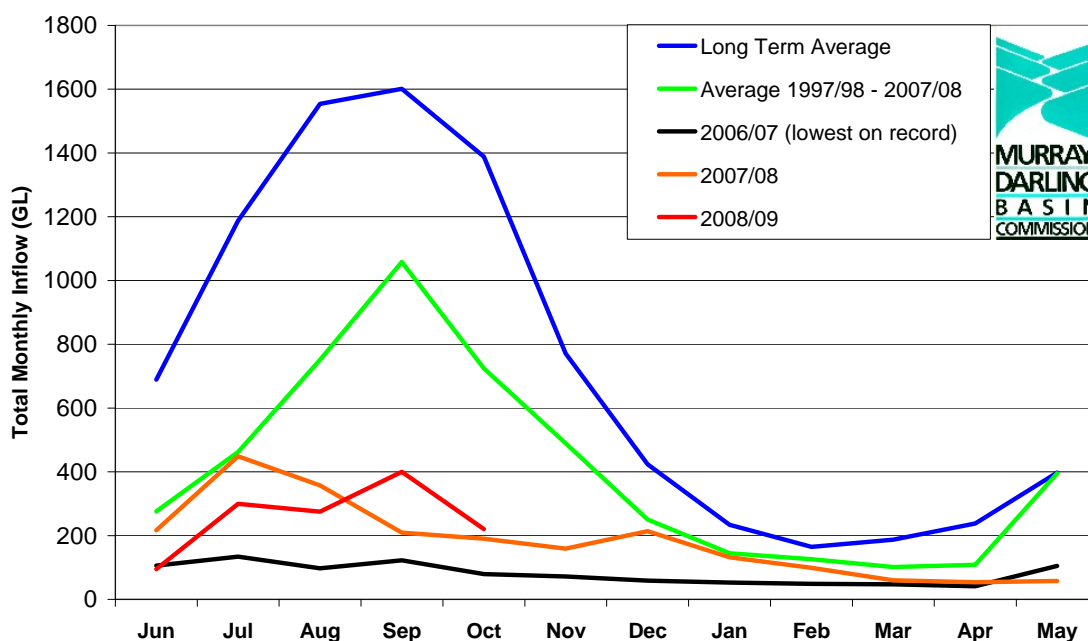


Figure 3. Murray system inflows (excluding Snowy and Darling inflows).

System Storage

Over the last 2 months there has been very little change in the volume of storage currently under MDBC control in Hume Reservoir, Dartmouth Reservoir and Lake Victoria. Total active storage is 1,890 GL or 22 % of capacity (Figure 4), which is slightly higher than the storage level of 1,780 GL at the end of October 2007 but well below the October long term average of 6,020 GL. There is a further 330 GL in Menindee Lakes (which remain under NSW control), some of which is currently being released into the Murray system to support allocations to NSW irrigators and also help supply NSW's supply to South Australia.

Elsewhere in the Basin, storage levels also remain very low. The volume of water in all Basin storages managed by the MDBC and State governments, is about 5,600 GL, or 24 % of capacity. Despite receiving a small boost from rainfall and snowmelt, storage in the Snowy Mountains (which are managed by Snowy Hydro) also remains low, with Lake Eucumbene at only 22 % capacity.

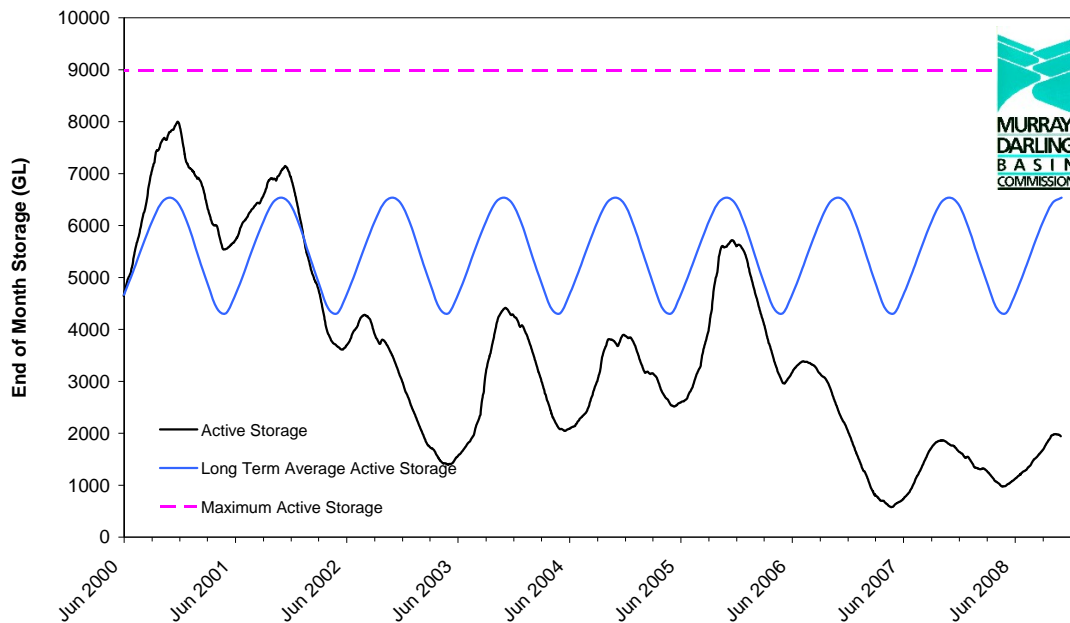


Figure 4. MDBC active storage, June 2000 to October 2008.

Murray Operations Update

The focus over winter and spring was to maximise water held in the headwater storages of Hume and Dartmouth Reservoirs. Now that summer demands are rising, flow rates are generally being increased across the river system. The overall goal of operations from now on will be to preferentially draw upon downstream storages and conserve water in upstream reservoirs for as long as possible, particularly in Dartmouth Reservoir. This operation will minimise evaporative losses and maximise the ability of the system to capture potential inflows next autumn/winter.

There are however some constraints and competing objectives in this operation; for instance the need to draw down Lake Victoria to lower its surface area and reduce evaporation while, at the same time, retaining enough water in the lake to supply South Australia's water share during the summer months. NSW is currently releasing water from Menindee Lakes, and this is helping replenish Lake Victoria.

Hume Reservoir will be steadily drawn down over the next few months, and by autumn levels will be similar to last year if conditions remain dry. During the summer months, small volumes of water will be released from Dartmouth Reservoir to supplement the storage in Hume Reservoir and to sustain the Mitta Mitta River. With relatively small volumes to be released, there are unlikely to be any channel capacity constraints like those experienced in the summer of 2006-07. Commencing in early November, the Murrumbidgee inter-valley trade account is being used to supplement the flow in the Murray through the Sunraysia district and also help maintain the storage in Lake Victoria.

The Murray-Darling Basin Commission will continue to review its operational plans as the season unfolds and more details will be provided via media releases, drought updates and weekly reports and these can be found at www.mdbc.gov.au.

Recreational Opportunities along the Murray

Notwithstanding the drought, the Murray River remains a large water body offering diverse recreational and tourism opportunities. The storage level in Hume Reservoir is likely to be similar to last year and this should be sufficient for boating, fishing and other activities. Between Hume Reservoir and Yarrowonga Weir the flow rate is likely to fluctuate between 7,000 and 13,000 ML/day, which is below the 20,000 to 25,000 ML/day expected in a high-allocation year, but still sufficient for most recreational pursuits. At Echuca, and in general between Yarrowonga Weir and Lake Victoria, flows are expected to be similar to last summer.



Figure 5. Notwithstanding the drought, the Murray offers recreational opportunities this summer

Lake Mulwala should be operating within its normal summer range of 124.6 to 124.9 m AHD (or 0 to 30 cm below full supply level) and this should provide excellent opportunities for holiday makers. Most other weir pools along the Murray are likely to be close to full supply level over the summer months. The MDBC will continue to issue weekly reports and media releases about any changes to river operations or water levels at specific sites.

Actual flows and levels on any particular day can be affected by the weather and changes to river operations, but the message remains that there should be good opportunities for recreation along the Murray this summer. However, lower than normal levels at some locations makes it imperative that all river users check for hazards and make any necessary adjustments to their activities.

Allocations and Water Trade

The combined effect of low storage levels and low inflows has resulted in low water allocations across much of the Murray system so far this season (Table 1).

| NSW - Murray Valley | | Victoria - Murray Valley | |
|----------------------------------|------|--|-----|
| High Security | 95% | High Reliability | 19% |
| General Security | 2% | | |
| NSW - Murrumbidgee Valley | | Victoria – Goulburn Valley | |
| High Security | 95% | High Reliability | 14% |
| General Security | 9% | | |
| NSW - Lower Darling | | South Australia – Murray Valley | |
| High Security | 100% | High Security | 15% |
| General Security | 30% | | |

Table 1. State Irrigation allocations (as of 3rd November 2008)

In Victoria the Murray high reliability water share is currently (as of 1st November) at 19 %, which is similar to this time last year (when it was 20 %). In NSW, the Murray high security allocation is currently 95 % and the general security allocation is 2 %, which is significantly better than this time last year when water suspended in 2006-07 was still being re-credited. In South Australia the Murray Valley high security allocation is currently 15 % which is similar to this time last year when it was 16 %. Unless there is a very significant improvement

in inflows during the next few months, water allocations are likely to remain very low for the remainder of the season. Further details of water allocations can be obtained from the relevant State Government authorities.

The MDBC recently announced that the trading rule controlling the transfer of water allocations from upstream of the Barmah Choke to downstream stretches of the Murray, will be relaxed until the end of February 2009.

In 2007-08 there was a very large increase in temporary water trade across the Murray system, with about 40 % of available water being traded. The price peaked at about \$1,000 per megalitre in October 2007. Prices this year have not been as high and water is currently trading between \$400 and \$600 per megalitre. Temporary water trading moves water to sites where it can be used for higher value production. This, and the fact that irrigators will be able to financially benefit from the sale of water, leads to greater water use efficiency. Permanent water trade allows irrigators to buy water to expand their activities. Alternatively, an irrigator who wants to retire land from irrigation, can sell all, or part of, his or her water entitlement and gain a financial return from the sale of that asset. Water trading gives irrigators, as well as other water users, the opportunity to increase the flexibility of their operations.

Environment and Water Quality

During winter and spring of 2008-09 the flows along the Murray remained very low and no flooding occurred. As a consequence, wetland and floodplain vegetation remains under severe stress. These conditions highlight the importance of providing small volumes of environmental water to maintain some drought refuges along the river system. At present there is only 2.3 GL of water available under the Living Murray program.

Water quality across the Murray system generally remains good. However, with continued drought conditions and lower than normal flows, there remains an elevated chance of algal blooms during summer.

Salinity along the Murray, upstream of Lock 1, remains relatively low. This is due to the successful operation of the salt interception schemes along the river, as well as a gradual reduction in saline groundwater levels along the river during the prolonged drought and also a predominance of river flows originating from the fresher headwater storages in the Murray. At Swan Hill, for instance, the salinity is only 60 EC which is below the ten year average of 130 EC. At Morgan in South Australia the salinity is currently 600 EC which is slightly lower than this time last year (720 EC) but higher than the ten year average of 460 EC.

The Lower Lakes remain in a critical state, with record low water levels, high salinity and the ongoing risk of acidification.

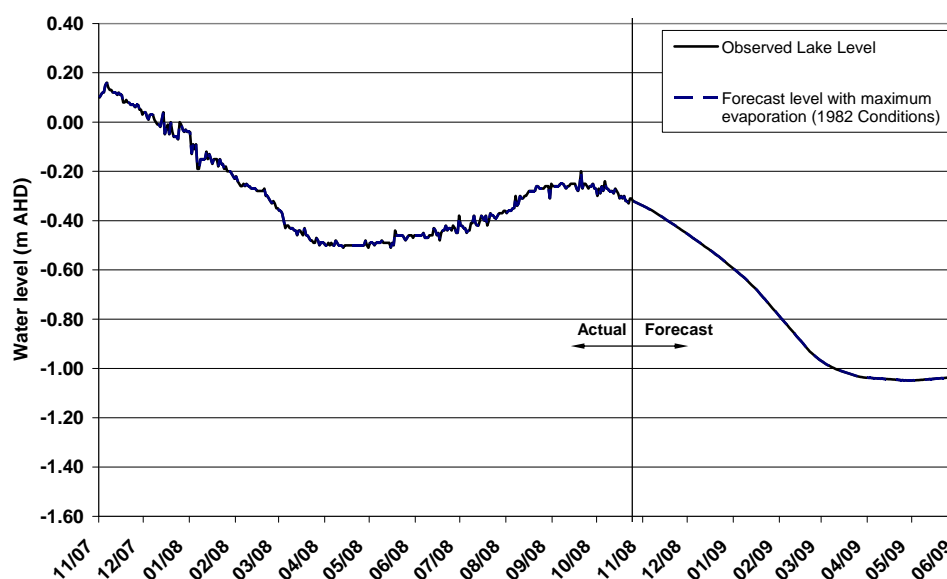


Figure 6. Lake Alexandrina water level: observed and forecast worst case assuming maximum net evaporation (1982 conditions). (Forecast data provided by DWLBC (SA).)

The water level in Lake Alexandrina reached a low of -0.48m AHD in late May 2008 and improved to -0.24m AHD by mid September 2008 as a result of local inflows from the Finnis River and Currency Creek, from direct rainfall over the lake, and from the lower Murray. The water level, (currently at -0.34 m AHD), is once again falling in response to warmer weather and increased evaporative losses, and is likely to continue falling throughout the summer months unless there is a very significant change in water availability across the whole system (see Figure 6).

Outlook

The Bureau of Meteorology's rainfall outlook for November to January indicates that the chances of being wetter than normal are about the same as the chances of being drier. The temperature outlook indicates a moderate to strong shift in the odds towards warmer than normal temperatures across most of south-eastern Australia. Further information can be obtained from www.bom.gov.au/climate/ahead

The rainfall and temperature outlooks, combined with the fact that only 20 % of Murray system inflows normally occur in summer and autumn, indicate that the chances of a significant improvement in Murray system inflows during the coming months is low. Historical records also indicate that it is rare to have a significant improvement in Murray system inflows after a dry winter and spring. This is reflected in Figure 7 which shows opening storage levels plus cumulative inflows to the end of October 2008. Historical records are then used to predict the likely water availability for the remainder of the 2008-09 water year.

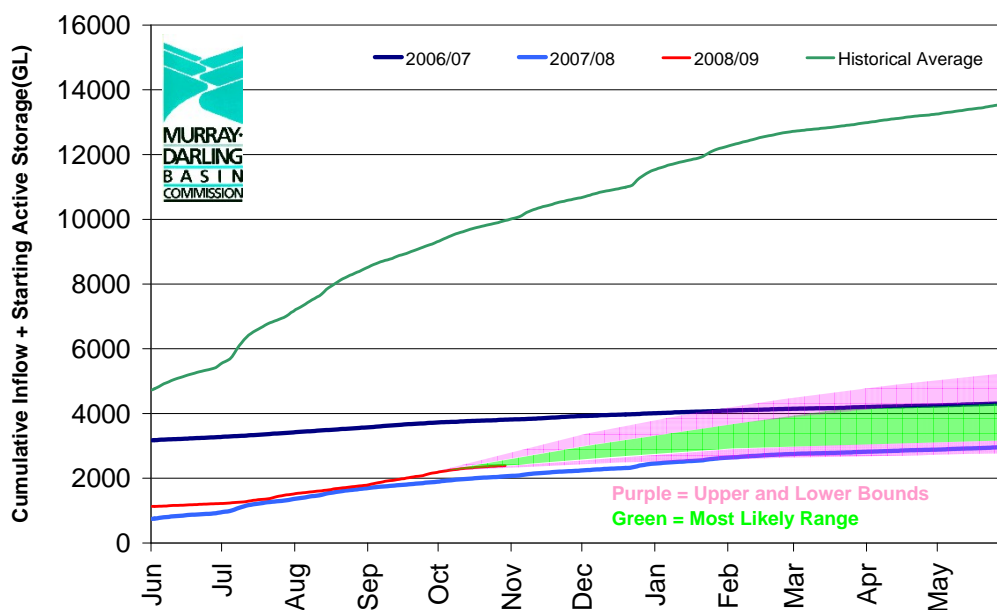


Figure 7. Cumulative System Inflows for selected years and forecast for 2008-09 (excluding Snowy and Darling inflows)

There is, however, a chance that summer rains in the north of the Basin might produce streamflows that move into the Darling River. Last year this resulted in a total volume of about 800 GL flowing into Menindee Lakes or moving downstream into the Murray River at Wentworth.

Unless there is a very significant improvement in water availability, current forecasts indicate that by autumn 2009, storage levels in the Murray system will again be very low. Over the next few months there will be an increasing priority to reserve water for critical human needs in 2009-10.

Transition to new Authority

Subject to the passage of Commonwealth and State legislation, the functions of the Murray-Darling Basin Commission will transition to the new Commonwealth Murray-Darling Basin Authority. This is currently scheduled to occur in November 2008. The Authority will continue to provide drought updates, media

releases and weekly reports that describe river operations and the impacts of the current drought along the River Murray system. Further information about the new Authority is available at www.mdba.gov.au.

Additional Information

Additional information is available at www.mdbc.gov.au and also from the relevant Australian and State Government Agencies. For media interviews with MDBC personnel, please contact Sam Leone, MDBC Media Liaison, telephone 0407 006 332.

Acknowledgements

The MDBC gratefully acknowledges Arthur Mostead for the use of his photographs: The front cover depicts Bottle Bend Lagoon on the Murray near Gol Gol, which has been contaminated by acid sulphates derived from sulphidic sediments. Figure 5 shows recreational swimming in the Murray.