Fact Sheet

5 River Murray

Inland Waters

River Murray Issues

The River Murray flows for 640 km through South Australia before reaching the Murray Mouth and the Southern Indian Ocean. Approximately 90% of the state's population relies on the River Murray as a water resource. In dry years, Adelaide may source up to 85% of its water from the River Murray, while the river supplies all the drinking water for Keith, Whyalla and Port Pirie.

The River Murray has been highly regulated to try and create a reliable source of water for irrigation, agricultural, industrial and domestic needs. In 2005/06, the value of irrigated agricultural produce was $550 million, despite the drought and reduced water allocations (allowances).The river also supports a wide range of ecosystems including floodplains, wetlands, the Coorong as well as the main river ecosystem. These ecosystems are home to many rare and several threatened species.

It has been known for many years that the ecological health of the River Murray is declining. This is due to many factors such as the over-allocation of water across the whole Murray Darling Basin; a reduction in the variability of water-flow; reduced frequency of floods; increasing salt levels; and the impact of introduced species. For the first time, the River Murray has been subjected to ten years of low rainfall as well as high regulation levels and over-use of the river systems. It has been ten years since the last effective over-bank flows (floods) and the River Murray is facing an extraordinary crisis.

"The River Murray is facing an extraordinary crisis."

Trends

Health of rivers, streams and wetlands of the River Murray floodplain is **declining.**

Health of floodplain vegetation is **declining.**

The health of ecosystems dependent on the River Murray is **declining.**

Volume of river-flow is **decreasing.**

Salinity in the River Murray main channel, floodplains and lower lakes is **increasing.**

Biodiversity of native fish species is **declining.**

River Murray

What is the Current River Murray Situation?

Condition indicators

Exceeding water quality guidelines for creeks and rivers

One of the biggest threats to water quality in the River Murray is rising salinity (salt in the water).

Salinity has always been a natural part of the River Murray. Groundwater naturally drains into the river, and in some areas this is more salty than sea water. Irrigation development and vegetation clearance have increased the salinity of the river system.

Salinity in the main river channel between the state border and Murray Bridge has been lower over the last few years than that recorded in the previous State of the Environment report. This decrease is likely due to reduced flows throughout the Murray Darling Basin, which reduces the salt load of the river.

> “Salt is accumulating in the river floodplains as there has not been enough water to flush it out.”

However, in 2008 salinity in the river increased due to saline groundwater and evaporation. Salinity has also increased in Lake Alexandrina, Lake Albert and at Goolwa where sea water has moved into the river mouth. Salt is accumulating in the river floodplains as there has not been enough water to flush it out. As drought conditions ease and water returns to the creeks, wetlands and floodplains, it is likely that salinity will increase, as salt built up in these systems is carried into the main channel. The level of salinity in the water upstream of Murray Bridge is considered suitable for irrigation and human consumption. Water in the Lower Lakes is considered poor for human consumption and irrigation of sensitive crops due to the high salinity levels.

Other water quality issues include the amount of nutrients and bacteria in the water; pollution from stock grazing; industrial discharges; urban stormwater; agricultural run-off; fuel and other wastes from houseboats; other recreational boating; and seepage from septic tank systems.

Responding to River Murray issues

National Plan for Water Security

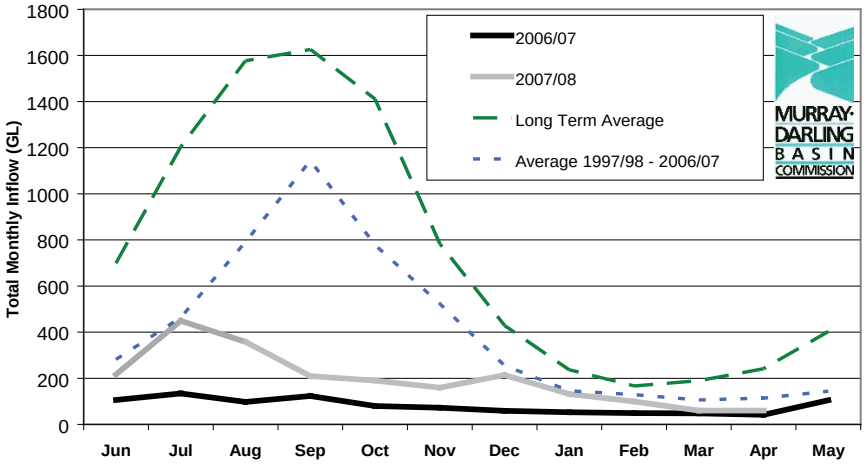
During 2007 there were extensive negotiations between the Commonwealth Government and the states about water management in the Murray Darling Basin. As a result the Commonwealth Government developed the Water Act 2007. This Act establishes a Murray-Darling Basin Authority that will have planning authority within the basin and will develop plans for the long-term sustainable use of water in the region.

The Commonwealth Government will also invest $10 billion in improving irrigation efficiency. Some of these water savings will go to improving environmental flows within the basin. Environmental flows are natural flows or releases of water that are intended to supply the environmental needs of rivers, creeks, floodplains and wetlands.

The Extent and Condition on the River Murray Floodplain

Using water for irrigation, domestic and industrial use has had a significant impact on the health of the River Murray wetlands. There are over 250 wetlands along the South Australian section of the River Murray, but there is still no comprehensive scientific information on the ecological condition of these wetlands.

Due to recent drought conditions many of the wetlands along the Murray have been disconnected from the main river channel and some have dried up completely. As at June 2008, 33 wetlands had been disconnected and are at significant risk of suffering long term damage if they are not re-filled soon.



Murray-Darling Basin Commission May 2008

> "The condition of the Coorong and Lower Lakes is serious and declining at an alarming rate."

Taking Action for the River Murray

We are using too much water from the River Murray. Think about all the ways in which you can reduce the amount of water that you use. Perhaps you could:

- take shorter showers,
- install a dual flush in your toilet,
- turn off the tap while cleaning your teeth,
- fix all leaking taps around home and school, and
- talk to your friends and family about the need to conserve water.

For more information go to www.murrayusers.sa.gov.au

Impacts of

the Continued Decline of the Health of the River Murray

Biodiversity

Regulation of the River Murray has disrupted natural flooding regimes and this has had significant impacts on dependent plant and animal communities. The river and its environment is home to many rare and several threatened species that will be put in danger if the system declines further.

Economic

Increasing salinity will reduce the yield from irrigated crops and permanently damage plants. Removal of sand (dredging) from the Murray Mouth to keep the river "flowing" is expensive. Wetlands provide important services including water filtration – if a wetland is destroyed the estimated loss is $7,000/hectare per year in water filtration alone.

Human Settlements

Increasing salinity will threaten drinking water supplies and some farms along the river will no longer be able to operate.

Health

Human health may be put in danger from high levels of toxic blue-green algae that grow in response to increased nutrient levels.

Culture

The River Murray is of great cultural and spiritual importance to indigenous people. The threats to its health will affect these values. The River Murray and its surrounds is also one of the richest sources of indigenous archaeological and heritage sites in Australia. The riverine and floodplain flora and fauna represent spiritual connection and are part of the cultural economy of Aboriginal people along the river.

Attention!!

What are acid sulfate soils?

Acid sulfate soils either contain or have the potential to form sulfuric acid when they are exposed to oxygen. Acid sulfate soils form naturally in coastal and freshwater environments in waterlogged areas where there are large amounts of organic matter (rotting plant material) and sulfates in the surface or ground water.

Since the weirs and barrages were built in the River Murray, sulfide minerals have been accumulating in the waterways – particularly in the Lower Lakes. The Murray-Darling Basin is currently experiencing the worst drought on record and water levels in the River Murray have dropped in South Australia. These low water levels have exposed wetlands, areas of riverbank and parts of the lower lakes that have been submerged for around 70 years (since the locks, weirs and barrages were erected). As the water level has dropped, the soil is exposed to air and sulfuric acid can form. Sulfuric acid can pose risks to water quality and have potential impacts on human and animal health, agriculture and the environment. Soils can become so acidic that few plants and aquatic animals can survive.

The condition of the Coorong and Lower Lakes is serious and deteriorating at an alarming rate. Water levels in Lake Alexandrina have dropped to 50 cm below sea level and Lake Albert has required the pumping of water from Lake Alexandrina to prevent further exposure of acid sulphate soils.

Research Ideas

about the River Murray

1 What are the major concerns for the River Murray?

2 Why is the River Murray so important to South Australia?

3 How have human activities in your community, South Australia, Australia and globally impacted on the River Murray?

4 What does the State of the Environment report tell us about the extent of the impacts on the River Murray in South Australia?

5 What might happen in the future if things continue as they are?

6 What are government, business and industry doing to address River Murray issues?

7 What can we do individually, or in communities, to reduce our impact on the River Murray?

Resources

For more detailed information on the issue and actions you can take see the State of the Environment report for South Australia 2008.

This is available at:
www.epa.sa.gov.au/soe

This fact sheet is part of a set of 20 fact sheets about the key environmental issues identified in the State of the Environment report 2008, produced for the Environment Reporting Education Resource. You can access the fact sheets and learn more about taking action for the environment at the Education Resource website: www.epa.sa.gov.au/soe.
For more information call the Environmental Education Unit of the Department for Environment and Heritage (08) 8463 3911.

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