



DRAFT Notes from Living Laboratories:
Pike River Irrigation Areas
DWLBC Meeting room, March 7th 2008

General Notes

2400ha irrigation

4000ha floodplains

The Pike River area is of high conservation value.

Irrigation licenses = 22 gigalitres per annum and another 15 gigalitres in promised in future development.

About 20% of total in flows from the Murray are taken for irrigation with the remaining 80% flows out the other end of the Pike River.

The groundwater in the area is so saline – with higher salinity than seawater

Pike River area discharges 100 tonnes of salt into Murray – which is predicted to double to 200 tonnes in 30 years.

Because of the last two points, a salt interception scheme has been proposed.

Pike River has about 300EC higher salinity than the Murray River.

Brainstorming points

- Given range of scenarios (increased/ decreased/no change in flow), what is the economic value of continuing any irrigation at all? (Return \$ / GL)
- What stages of remediation are required to introduce and sustain plant growth in the Pike River system?
- There is a need to address the biodiversity of the system
- Although the system is artificial- Pike may now provide flow habitat that is lacking in the main channel
- Flow reconstructions: variability, timing, durations, changes over time
- Impact of changes in flow on biota and water quality eg. Look at changes in abundance over time of River Red Gums and Typha and relate to flow
- Utilise the ‘fast’ flows in part of the anabranch system for environmental benefit (eg fish) – where / how?
- Relative return of using environmental water in Pike system relative to other flood plain systems in stream habitats
- Acid sulphate soil studies/ research needed
- Assess impact of opening restrictions at head of the system
- Investigate use of Swagman Destiny tool for Pike area (whole landscape picture)
- Provide irrigation water via other means – manage the system ‘naturally’
- Depend on more NATURAL flow rather than engineering
- How to revegetate highly degraded, saline soils of the floodplain
- Research on fish ie. Numbers, species, habitat
- Changes in aquatic vegetation over time: spatial distance, increase or decrease in individual species, pest / intro species
- Sedimentation research – can it be used to help direct management options?



- Sources of sedimentation in Pike since 1930s (river regulation) – what are the causes and what is the impact of flow rate?
- Economic alternatives to grazing. Grazing buyout is not an option – figures are too high.
- More detailed data
- Groundwater impacts of water level fluctuations
- Assuming economic sustainability (applies to all parts of Murray) to what extent can we increase W.U.E of irrigated crops?
- Affects of irrigation deficit on Kc under reduced irrigation regimes
- Sustainable salinity dynamics/levels associated with high irrigation efficient or low leaching fractions
- Managing salt in productive environments: fertiliser, calcium, sodium
- Can you de-silt without risk?
- \$ GL⁻¹? Cost to environment?
- Policing current regulations / land use
- Pike River in broader context of 'Environmental flows'
- River water salinity 200-900µScm – can't irrigate on saline soils
- Plant native vegetation both under and over storey
- Social and \$ impact of removal of irrigation from Pike area