

Demosite description

Lithology / Geochemistry

The Murray-Darling Basin covers 250,000 square kilometers of flat plains in a basin made up of quaternary and tertiary sediments and salt on an impervious rock base



34°17'S, 146°02'E



Courtesy of I.Overton, 2011

Main description:

- ▶ **The River Murray is the life blood of the 1,7 million inhabitants South Australian population and its economy.** The area stretches from the river channel from the Victorian border including Lakes Alexandrina and Albert.
- ▶ **The Murray-Darling Basin is Australia's most important agricultural region accounting for over 39% of Australia's gross value in agricultural production.**
- ▶ **There are 16 RAMSAR significant sites** as in particular, Chowilla Floodplain, the River Channel, the Coorong and Murray Mouth.

Conserve Ecohydrological processes in natural ecosystems

✗ NO

Enhance Ecohydrological processes in novel ecosystems

✗ NO

Apply complementary Ecohydrological processes in high impacted systems

✓ YES

Ecohydrology Principles and Solutions

EH IMPLEMENTATION PRINCIPLES

* Quantification of the hydrological processes at catchment scale and mapping the impacts

EH SOLUTIONS

Water requirements model



Floodplain inundation model (FIM, fig.1)



Salt accumulation model



Vegetation health model

Lifetzones

Due to the area of this demosite and the extremely variability of rainfall patterns and temperature, 7 ecological life zones are represented in the two basins together.

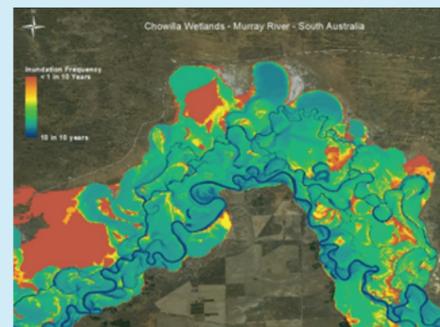


Fig.1- FIM Indicator Map-Chowilla Wetlands- Murray River (Murray-Darling Basin Authority,2006)

Major Issues

- * Blue-green algal blooms
- * Risks of salinization (fig.2)
- * Loss of wetlands
- * Water overallocation and overuse
- * Floods were reduced by a factor of 3 (droughts)

Social-Ecohydrological System

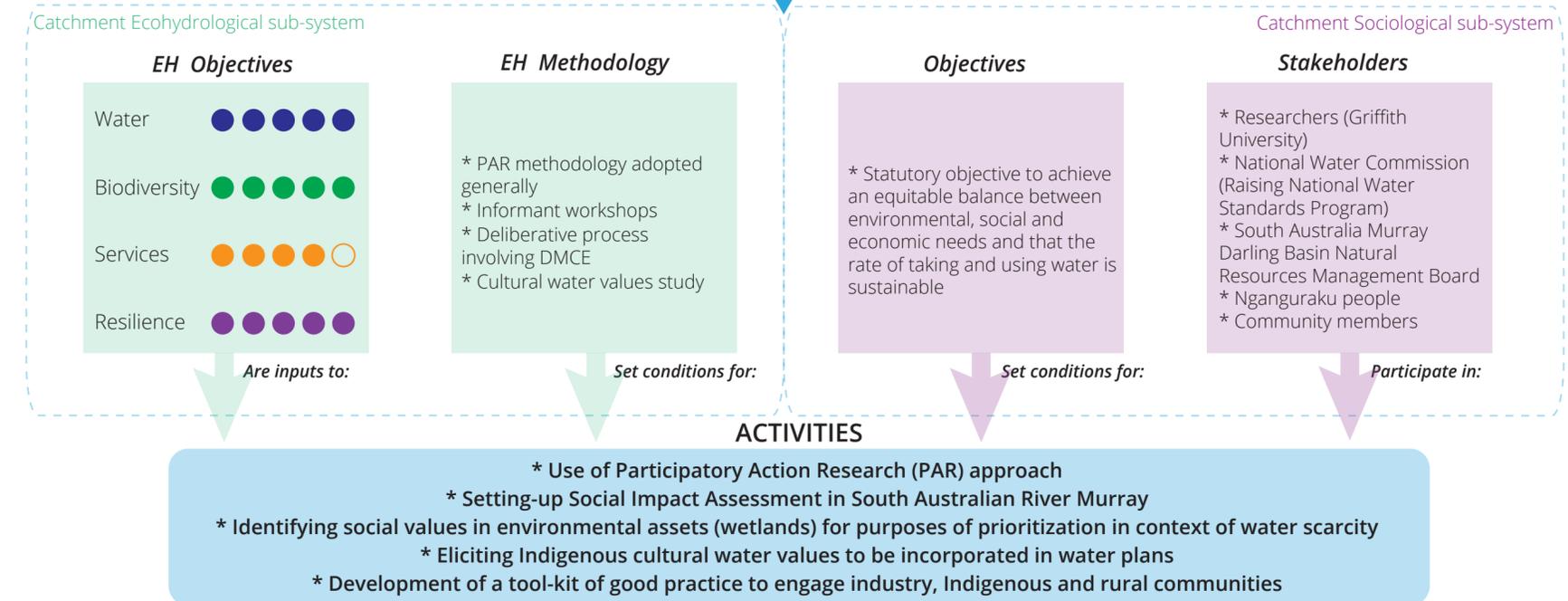


Fig.2- Effects of droughts and salinization (courtesy of I.Overton, 2011)

Results

MAIN EXPECTED OUTCOME

Design and use of tools such as Deliberative Multicriteria Evaluation and Groundwater Visualisation Tool

LATEST RESULTS

- ▶ Improved understanding of social and economic impacts of change.
- ▶ Facilitated deliberation on complex issues, shifting individuals from interest based positions.
- ▶ Established protocols which built trust and transparency.
- ▶ Increased interest by stakeholders in decision-making for use of environmental water.
- ▶ Improved relationship with indigenous groups and exploration of meaning of cultural water.