

Wetland Salinity: Predicting the ecological consequences



FACT SHEET No. 1 – Aquatic Plants

Project Objectives

- To quantify the relationship between increasing salinity and the structure of biological communities that develop from dormant aquatic plant seeds and zooplankton eggs.
- To determine how the interaction between salinity and hydrology influence wetland biological communities.

Background

Within the sediments of wetlands and rivers there is a store of seeds of aquatic plants that provides an important reservoir of biodiversity. Loss of viability of the “seed-bank” will have a significant impact on the biodiversity of wetlands

Methods

- Sediment from 7 wetlands was exposed to 5 salinities - <800, 1500, 3000, 4500 & 7500 EC units ($\mu\text{S}/\text{cm}$).
- Sediment was flooded at either a shallow or deep level.
- The number of aquatic plants germinating and the number of different types of aquatic plants germinating were counted after 16 weeks.

Results

The response of aquatic plant communities developing from the seed bank in the Great Cumbung Swamp sediment under increasing salinity was typical of those germinating from the other 6 wetlands with a decrease in diversity and abundance as salinity increased.

This response was more apparent in shallowly flooded sediment when compared to the deeper flooded sediment.

Overall:

- Salinity above 1500 EC units reduces aquatic plant community richness and abundance.
- The effect is more obvious in aquatic plant edge communities than more frequently flooded areas.
- Aquatic plant communities in different wetlands respond in different ways to different levels of salinity.

Key outcomes

1. Assisting communities set, revise and deliver on current and future salinity targets and associated management actions.
2. Contributing knowledge needed to guide the conservation of wetlands not impacted by salinity.



800 EC



1500 EC



7500 EC

Project Numbers: DLWC 4044 & CRCFE D723

Project Leaders: Dr Daryl Nielsen & Dr Margaret Brock

For more information contact: Dr Daryl Nielsen - Murray-Darling Freshwater Research Centre
PO Box 921, Albury, NSW, 2640.

Ph: 02 60582339

Fax: 02 60431626

Email: daryl.nielsen@csiro.au