

ESTABLISHING REED BEDS IN THE LOWER LAKES

Benefits of Reed Beds

Reed beds once encircled the perimeters of both Lake Albert and Lake Alexandrina, providing resources to people and animals, and protecting the edge of the banks from erosion. Through sea water incursions before the barrages were constructed, clearance, grazing and more constant water levels, much of this protective vegetation has been lost.

Lakeshore Erosion Control

A number of factors contribute to lakeshore erosion, however, one of the main causes, lack of vegetative cover and constant pressure from high energy waves, can be managed with the re-establishment of reed beds. Off-shore reed beds help to reduce the energy of waves hitting the banks, thereby reducing the erosive force. Reeds on the shore line also help to bind and repair areas of erosion.

Whilst a number of engineering methods are also used to combat lake edge erosion, reed establishment is the favoured method for the following reasons:

Cost

Compared to other lakeshore erosion control methods that rely on costly machinery and materials, the only equipment needed for this technique is a long-handled spade!



Digging up reed clumps (photo J. Tesoriero)

Legalities

Unlike most other methods, no development applications or EPA licences are required. Transplanting reeds is technically native vegetation clearance under the *Native Vegetation Act 1999*, however an exception has been granted for landholders around the Lower Lakes that work with

either the Goolwa to Wellington or Coorong Districts Local Action Planning groups.

Success Rate

The method outlined in this fact sheet has been used for erosion control at a range of sites around the Lower Lakes with great success. Other methods, even those that are much more costly, have proved to be less reliable.

Regaining Lost Ground

The calmer waters between the off-shore reed beds and lake edge also encourage sediments in the water to settle on the lake bed, thereby gradually regaining "lost" ground. During periods of low lake levels, sand has been observed to deposit in established off-shore reed beds. It is likely that when water levels are raised, these deposits will form a new lake edge.

Habitat

Reeds create habitat for a range of flora and fauna, including birds and fish. Off-shore reed beds provide a refuge for many species of birds to nest safely from ground dwelling predators.

The sheltered water created between the off-shore reed beds and the lake edge is a particularly scarce habitat. Often this area is populated by submerged aquatic vegetation which is unable to grow in open sites. Threatened fish species are more likely to occupy these areas.

Lake Bed Wind Erosion Control

Establishing vegetation on the bed of the lakes will help prevent erosion of sandy soils by wind during periods of low water levels by providing ground cover and slowing wind speeds. Reed beds also trap sand, which may result in land being gained when water levels are raised.

Acid Sulfate Soils

At the time of publication, pasture, crop and reed establishment trials were underway near Meningie on acid sulfate soils of exposed lake bed. The trials will help to improve knowledge of the interaction between vegetation, soil biota and acid sulphate soils, as well as the prevention of erosion of the bed during periods of exposure. Acid sulfate reports are updated on the CSIRO website: www.clw.csiro.au/acidsulfatesoils/index.html

How is it done?

A local landholder living near Meningie, on Lake Albert, has undertaken a range of trials in order to develop the most successful method which is outlined below.

Type of Reed

River Club-rush (*Schoenoplectus validus*) is best used for lake edge erosion control as it grows well in deep, rough water, spreads quickly from underground rhizomes, and doesn't die-off over Winter, unlike other common species. It also survives well under low lake level conditions.

Other large aquatic reeds such as Common Reed (*Phragmites australis*) and Bulrush (*Typha* spp.) can also be established by this method for habitat and other purposes. Common Reed is particularly useful as it grows up the banks and can bind the bank soil.

Size of Clumps

Dig up clumps of 6-8 green stems with a root mass a spade-blade in depth. If transplanting from an area where the lake bed is exposed, ensure weeds are not collected along with the River Club-rush.

Distance Off-shore

Generally the further off-shore the reeds are planted the better, but at least 10m from the bank is required for erosion control. If establishing reed beds during periods of low water levels, plant at least as far out as the water's edge to maximise the opportunity to put reeds out so far as well as ensure there will be sufficient soil moisture for their survival.

Clump Spacing

The most efficient and effective planting pattern is to plant two rows, one metre apart, parallel to the shore line, with one metre between clumps. The clumps in each row should be staggered. Planting density can be increased or decreased to suit the distance of shoreline to be protected and the available labour, however this may affect the time taken for the reeds to form an effective erosion barrier.

Planting Method

Dig a hole deep enough to take the clump, insert the clump, then backfill. This method is similar to planting a tree on dry ground and can be used when the lake bed is underwater or exposed. Excellent success has also been achieved by digging a continuous trench and planting the clumps into this at one metre spacing. This probably encourages rapid development of the root mass into the soft, disturbed lake bed.

Note: if the lake bed is exposed at the time of planting, acid sulfate soils (ASS) and potential ASS should not be dug and other methods of establishment such as by seed will be required.



Reed clumps spaced one metre apart is the best approach (photo J. Tesoriero)

Timing

Reed establishment is best carried out between November and February, but getting reeds in earlier will maximise their initial establishment rate. During this period reeds are growing most actively and wave energy is lower.

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