

Shoalhaven River Major Riverbank Stabilisation

Nowra, NSW

Location: Nowra, NSW

NRM Region: Sthn Rivers CMA

Industry: Beef farming, tourism and lifestyle

Issues:

- Severe bank erosion
- Sedimentation of river affecting water quality for wildlife, residents and oyster industry

Landholder Vision:

- Riverbank erosion beaten, water quality improved. All protected by fencing as the cattle grow fat munching the green grass.

Funding:

- The Australian Government Envirofund is the local action component of the Australian Government's \$3 billion Natural Heritage Trust.



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Small Farms and Rural Living Network

Southern Councils Group

The Project

The purpose of the project is to stabilise 550m of severe stream bank erosion on the lower Shoalhaven River.

The project site was recognised as one of the worst erosion sites on the Shoalhaven River by the 2006 Shoalhaven River Estuary Management Plan.

A conservative estimate by the Department of Lands in 2006 suggested a loss of over 13,200 cubic metres of soil has been eroded with over 8 metres (width) at an average height of 3 metres lost. This large amount of sedimentation is greatly affecting river flow behaviour downstream, water quality for Shoalhaven residents, recreational users, an important oyster industry, a sensitive mangrove estuary environment and vital fish habitat.

This particular section of the river is very popular (increasing every year) and the main cause of the erosion results from: water-skiing, wakeboard users, general boating activities and cattle damaging the upper river bank / sides. Because of increased activity on the river, the rate of damage has been accelerating.



Landholder standing next to a recent bank slump, one of many along the 550m of affected stream bank (2005)

Project Funding

The Australia Government Envirofund provided \$49,000 in funding which greatly assisted in initiating the project. Southern Rivers Catchment Management Authority through their Shoalhaven / Illawarra Riparian Partnership Project contributed \$116,000. The project took 8 weeks to complete which included construction and planting of the river bank. Total project cost including landholder in-kind and staff time for construction and planting was \$228,063.

Project Design

The project was designed and managed by Lyall Bogie, River Rehabilitation Officer for the Southern Rivers CMA with planting and project support from the Small Farms Network team.

The project was planned and designed through consultation with other Southern Rivers CMA staff, and field visits to similar established sites at Moruya and Bega. Geomorphic and design advice was sought from external government agencies and private contractors with project experience.

Some elements of the original project design were changed to ensure long term success of the structure. This included:

- a) Pile logs to be turpentine with bark on, instead of general forest logs which would not be as durable.
- b) Piles to be sleeved with High Density Polyethylene at, above and below waterline to keep out marine borers. The Shoalhaven River is rated one of the worst rivers in NSW for marine borers.



Turpentine log pins being hammered in by an excavator near the boat ramp.



c) 1.5m wide basalt toe rock was added below wall for flood scour protection.

d) Logs transported to intermediate dump, then reloaded and brought to site - to overcome uncertainty in supply from State Forests.

As a result of these changes in design and materials, the project budget was significantly more than first estimated by the Southern Rivers CMA. The project was programmed to begin in September 2008 however, the start date was rescheduled for May 2009 due to the landholders busy spring / summer farm accommodation trade and the lack of suitable logs for the base and pins.

Further site investigations during early 2009 included an Aboriginal Land Council survey for artifacts which was negative, as well as Wollongong City Council Geotechnical Department who examined the suitability of footing design which was approved.

Timber for the construction of the wall was sourced from NSW State Forests at Batemans Bay, using Bloodwood (*Corymbia gummifera*) as base logs and local Turpentine (*Syncarpia glomulifera*) for pins.

Construction started on the 27th April 2009 using 2 x 20 tonne excavators and finished on the 30th June 2009. The stages involved in the construction and completion of the project included:

1. Sleeve and point pins completed on site.
2. Survey river bank arc and measure distances for pin placement.
3. Drive pins into the river bed using a modified rock hammer on excavator.
5. Place geofabric on river bed and against bank.
6. Lay base log, backfill, next log, backfill until desired height of 1200-1500mm was achieved.
7. Place rock in front of wall (300-500mm diameter basalt from Albion Park).
8. Batter bank to 1:4 or less to prevent slumping post flooding and create maintainable slope for landholder to slash.
9. Ends of log walls were flanked by small rock wall structures to key them in for stability.
10. Soil Co provided coarse material and recycled organic soil conditioner (mulch) mixed with grass seed (rye corn) which was spread over project area for soil stability and ground cover.
11. Pin top log to second log with steel reinforcement bar, to stop top log lifting during flooding
12. Plant river bank with native grasses and shrubs to further stabilise the soil and to link existing riparian corridors.



Lyall Bogie, River Rehabilitation Officer (SRCMA) surveying the project site.

Project Results

The project has generated significant interest from recreational users on the Shoalhaven River. The structure is solid and the native grasses and shrubs have established, despite grazing pressure from Kangaroo's and Wombats. Staff will await the first minor / major flooding event on the Shoalhaven River to determine the effectiveness of the design. Further planting of kikuyu runners and grass seed will be undertaken to ensure 100% ground cover is achieved before the busy tourist season and potential heavy summer rains.

More Details

For more details about this project or to plan your own project, contact Andrew Britton, Small Farms Coordinator on (02) 4232 3200 or email abritton@southern councils.nsw.gov.au

Project Partners

This project has been greatly supported and joint funded by the Southern Rivers Catchment Management Authority.



River bank mulched and planted with lomandra, casuarina and a variety of native grasses and shrubs.

