



Lake Macquarie  
Landcare

# Case Study

Coastal Site

## Catherine Hill Bay Dune Regeneration Project



*Carpobrotus glaucescens* 'pigface' stabilising foredune

### Project Partners:

- Catherine Hill Bay Dunecare
- Bahtabah Local Aboriginal Land Council
- Lake Macquarie Landcare



## Background

Catherine Hill Bay is located in the South East of Lake Macquarie City Council Local Government Area (LGA). The town was named after a schooner called the 'Catherine Hill' that was wrecked in the bay in 1867.

Coal mining commenced in 1873 in the cliffs close to the location of the present jetty. The first settlement was called New Wallsend. However this first mining venture failed, the settlement was abandoned and housing stock removed. A few years later, the first jetty burnt down.

In 1888-1889 the Wallarah Coal Company bought the mining leases, built a second jetty, railway and housing. Housing was built in response to need and the location of pits but the entire town was called Catherine Hill Bay.

In 2004, the heritage village and surrounding area was protected as a Heritage Conservation Area by Lake Macquarie City Council and in 2010 Catherine Hill Bay was placed on the State Heritage Register, only the second town in New South Wales to be given this status. There are currently about 100 houses.

The Catherine Hill Bay area incorporates a wide variety of vegetation communities ranging

## Lake Macquarie

Lake Macquarie is located on the NSW east coast, It contains mountains, forests, waterfalls, extensive beaches, and a large coastal estuarine lake with an area of approximately 110 square km, and a catchment area of 605 square km.

These areas support a wide range of habitats and uses including nature conservation, recreation, residential and commercial development and rural activities. As a result, the natural environment has suffered a high degree of modification and degradation.

## Aboriginal Heritage

Lake Macquarie is rich in Aboriginal cultural heritage dating back tens of thousands of years. The people who lived around Lake Macquarie and Newcastle were known as the Awabakal which means "*the people of the flat surface*" presumably referring to the Lake and its flat surrounds.



**View through Spring flowering vegetation to the historic jetty of Catherine Hill Bay**

from complex coastal regions to a wide range of forest communities.

Over this history, the primary land use was underground coal mining. All the timber needed for the mine, railway and housing was taken from the estate. There has also been stockpiling of coal over large areas, and coal chitter was used for fill, too.

This means there are areas which would require significant resources to rehabilitate due to contamination of the soil, erosion, non-native plant introduction and weed invasion.

## **Site Information**

There are currently two Landcare sites at Catherine Hill Bay; The 'South Site' area around the Surf Club and 'North Site' which is also known as "Graveyard Beach". Earlier work included weeding in the Cabbage Tree Palm groves west of Flowers Drive and to the North and South of Colliery Rd, with the landowner's permission. Catherine Hill Bay Creek was also cleared of weeds and planted.

### **South Site**

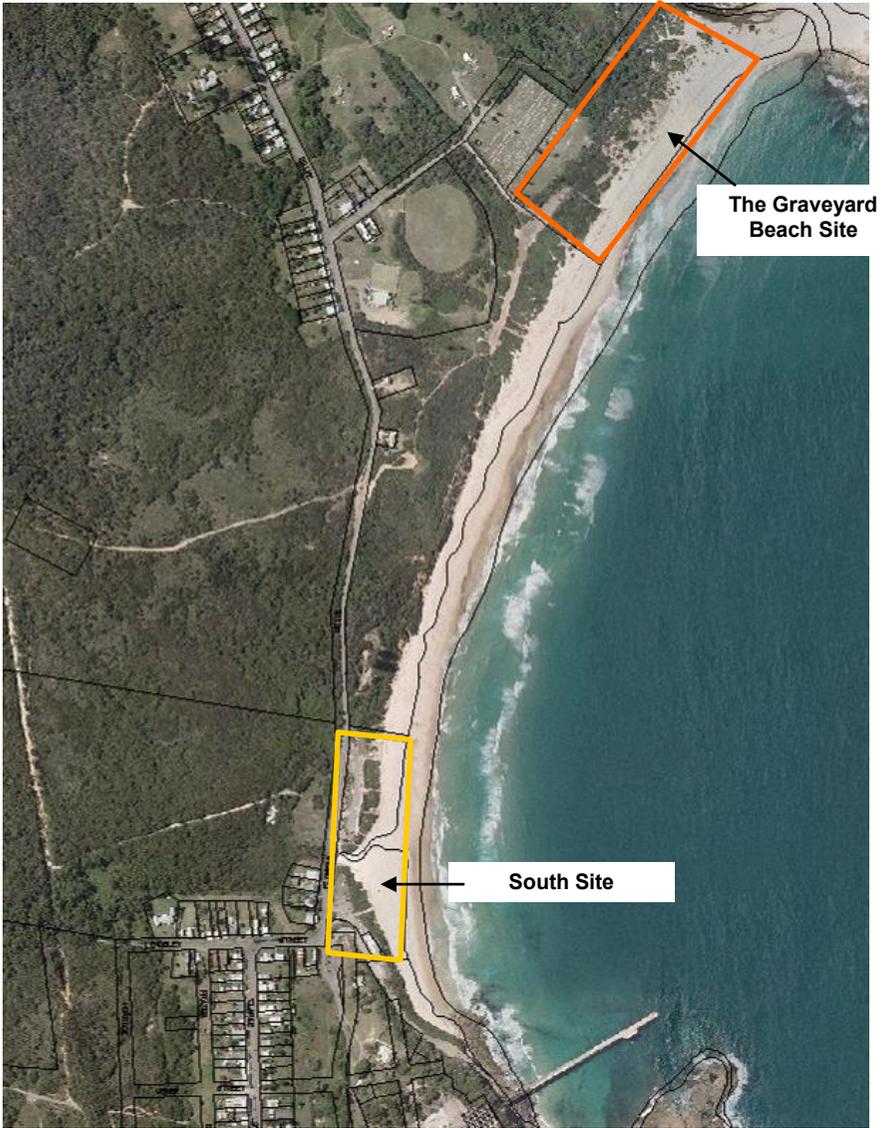
The South Beach site consists of two dune/escarpment paddocks intersected by a beach access track of about 50 metres, and located

adjacent to the Clubhouse and facilities. The management zones include Natural Area- Watercourse, Natural Area- Foreshore, and an area of General Community Use. The immediate back beach area is stabilised with *Spinifex* but the slope to the Clubhouse and southern parking area has poor native plant representation with a few *Banksia integrifolia*, *Acacia sophorae* and *Lomandra longifolia*. The clay and conglomerate slope leading up to the clubhouse is dominated by weed species, which need to be removed and replaced with suitable native species. Despite the weed infestation, there is a surprising diversity of native species in the zone around the clubhouse, which can form a model for a planting program. There is one small area of the Endangered Ecological Community- Themeda grassland on coastal seacliff. The paddock in front of the clubhouse must be planted in such a way that it does not restrict the view of the beach for lifesavers.

The other section of the site north of Catherine Hill Bay Creek has three dune paddocks, again stabilised with *Spinifex sericeus*, *Banksia integrifolia*, *Acacia sophorae*, *Lomandra longifolia*, and *Leptospermum laevigatum*. The paddocks could do with a maintenance weed and some denser planting of scrambling species like *Hardenbergia violacea*, *Hibbertia scandens*, and *Kennedia rubicunda* to cover the dead Bitou stems.

## **North Site**

The dune area from the cemetery north was gifted by Coal and Allied and is now Crown Land. It has been worked on over the years by the Dunecare group, Conservation Volunteers, and, most recently (in 2012), the Lake Macquarie Landcare bush regeneration team with funding through LMCC Sustainability and the Office of Environment and Heritage. The site is well vegetated, but, as in most of dune paddocks, Bitou maintenance weeding is an ongoing task, and planting of unrepresented dunal species would add to greater native species diversity and resilience.



Above: Map of Catherine Hill Bay Landcare Sites

## Vegetation

The vegetation of the Landcare sites consists of degraded remnants of or restructured LHCCREMS Map Unit 50 Coastal Sand Scrub & Map Unit 53 Beach Spinifex.

### Native Species include:

*Acacia sophorae*- Coastal Wattle

*Banksia integrifolia* - Coastal Banksia

*Carpobrotus glaucescens*- Pigface

*Commelina cyanea*- Scurvy Weed

*Hibbertia scandens* - Golden Guinea Flower

*Ficinia nodosa* - Knobby Club-rush

*Gahnia clarkeii*- Tall Saw Sedge

*Isolepis nodosa*- Nodding Club Rush

*Leptospermum laevigatum*- Coastal Tea Tree

*Lomandra longifolia*- Mat Rush

*Monotoca eliptica* - Tree Broom Heath

*Spinifex sericeus*- Beach Spinifex

*Sporobolus virginicus*- Saltwater Couch

*Tetragonia tetragonoides*- Warrigal Greens, New Zealand Spinach

*Themeda australis*- Kangaroo Grass

*Westringea fruticosa*- Coastal Rosemary



Pigface (top) and Golden Guinea Flower (above)



Above: The native *Scaevola calendulacea* (left) can look quite similar to Bitou seedlings (right) when not in flower, so careful weeding in dunal areas is required as they are commonly found together.

**Weeds include:**

Bitou (**Target weed**)

Coastal Gladiolus

Coastal Morning Glory (**Target weed**)

Gazania

Pennywort

Sea Rocket



Above: Goanna in *Livistona australis* grove.

**Fauna**

Catherine Hill Bay is home to many birds and other animals. The White-bellied Sea Eagle, listed under the Environment Protection and Biodiversity Act, regularly soars in the area.

Humpback Whales, a Threatened Species, can be observed in winter breaching, pectoral fin waving and slapping directly off the bay. For all of these species, entanglement or ingestion of discarded fishing tackle and other litter is a threat.

## Landcare Group

Community Landcare activities at Catherine Hill Bay were launched on “Clean up Australia Day” in 1991 as part of a joint project by the local community, the largest landowner in the area (Coal and Allied Operations Ltd), National Parks and Wildlife Service, local councils, Swansea Lions Club and police to clean-up Moonee Beach, close it to 4WDs and incorporate it into Munmorah State Conservation Area.

Coal and Allied initially invited residents to join a Dune Care group which had a common membership with the Catherine Hill Bay Progress Association. The two groups formally became one body in 1998 and were incorporated in 2002, coinciding with the anniversary of the Progress Association’s foundation a century earlier.

With strong support from Coal and Allied the Dune Care group worked to fence the frontal dunes at the southern end of Catherine Hill Bay beach, the work being performed by volunteers on Sunday mornings.

During 1995-97 three LEAP Training Programs each with a supervisor and 10 trainees completed the re-shaping of high dunes at the northern end of the Beach, between the heritage cemetery and the popular surfing spot known as “Graveyard Beach”. The project was particularly sensitive because of the re-discovery there in 1992 on the top of one dune of three historic family graves, dating in one case from 1897. The Dune Care activities cleared the site and removed sand 2m deep to expose the tombstones. In addition the LEAP teams restored vegetation, defined paths with fencing and marked walkways.

Two Green Corps programs in the late 1990s and early 2000s grassed Moonee Beach and completed improvements at the cemetery and southern beach car park.



**Above: One of the historical grave sites uncovered in the hind dune area of the Landcare site.**

Following the decline in mining and sale of land to a developer in 2002, the Progress Association turned its environmental attention to preparing a case for the former coal mining lease (known as the Wallarah Peninsula) to become a national park. The submission took about two years to complete and resulted in an Environmental Assessment of the area in 2005. The Department of Environment and Conservation confirmed the high ecological value of the area, which contains a number of threatened species and fauna and flora.

Through the period Dune Care has promoted Clean Up Australia Day as a significant community activity.

Activities at Catherine Hill Bay were re-invigorated in 2005 when a group of volunteers approached the Progress Association to re-establish on-ground activities. They developed a work program and priorities and Catherine Hill Bay Progress Association and Dune Care Inc. is a proud participant in the Landcare organisation.

In 2006 Conversation Volunteers Australia provided teams of people for weeks on end to deliver against the largest resource intensive projects. Some of 2006's reports showed many large piles of weeds cleaned out from sensitive creek water catchment areas, and extensive planting on the beach front dunes and clearing of pedestrian walkways provided dune stabilization and improved visitor amenity.

Also in 2006, Coal & Allied continued to provide access to areas identified in the plan as needing Landcare attention, and clearing the previously mentioned piles of weeds the teams amassed.

The best accolade of the Dunecare group's 2006 success would have to be the combined teams contribution to Catherine Hill Bay winning the NSW Hunter Region Clean Beach Challenge.

In 2007-12 the group built on previous years programs by doing secondary maintenance, and extending the weed free buffer zones. At times, group numbers dwindled leading to a reinvigoration of the group in 2013 with renewed training and support from the Lake Macquarie Landcare Resource Centre.

In 2014 a huge effort on Clean Up Australia Day cleared the headland to the south of Catherine Hill Bay of all the bottles in the bush exposed by the October 2013 bushfire.

## **Landcare in Lake Macquarie**

Lake Macquarie Landcare is a partnership between Lake Macquarie Landcare Network Incorporated (LMLN inc), thousands of dedicated and committed community volunteers, and the Lake Macquarie City Council (LMCC) which provides project support through the Landcare Resource Centre (LRC).

If you would like to get involved in Landcare in Lake Macquarie or would like more information please contact the LRC on 4921 0392.

## **Catherine Hill Bay ‘Graveyard Beach’ Stabilisation Project 2011- 2012**

This project aimed to target weed the foredune paddocks at Graveyard Beach down to Mine Camp Gully creek, back to the hind-dune and the cemetery. The dune paddocks had a mixture of mature Bitou and a reconstructed native dunal community.

After weeding, planting was undertaken to attempt to achieve greater biodiversity of the existing plant community.

There are both Aboriginal and European heritage issues on this site, and the work was sensitive to these issues.

Weeding involved minimal disturbance techniques, weed debris was stacked on the seaward side of the Tobin, Hennessy, and Norman graves to prevent sand encroachment.

Prior to the planting, the Lake Macquarie Landcare Vegetation Management Officer inspected the site with a Bahtabah LALC Sites Officer to prevent disturbance of potential Aboriginal heritage sites.

The Lake Macquarie Landcare bush regeneration team targeted Bitou through manual removal, cut/paint, and splatter gun in the northern dune paddocks. The team also planted a mixture of native dunal plants in areas where there was little natural regeneration.



**Above: The Lake Macquarie Landcare Green Team conducting maintenance weeding of Bitou amongst the good diversity of native vegetation.**



**Left: Plantings help to stabilise foredune.**

**Coal chitter from former rail line above fore dune presents challenges for plant survival.**

## References and Further Information

Catherine Hill Bay Landcare - <http://catherinehillbay.org.au/landcare/>

Facebook CathHillBay Landcare,

<https://www.facebook.com/CathHillBayLandcare?ref=hl>

[Lake Macquarie Coastal Planting Guide \(LMCC\)](#), - [www.lakemac.com.au](http://www.lakemac.com.au)

Lake Macquarie City Council, *Sustainable Management of Aboriginal Cultural Heritage in the Lake Macquarie Local Government Area: Lake Macquarie Aboriginal Heritage Management Strategy*, 2011, available online at [www.lakemac.com.au](http://www.lakemac.com.au)

[Native Plant or Weed Pick the Difference Volumes 1 and 2 \(Ann Loughran\)](#)

[Restoring Natural Areas in Australia \(Robin Buchanan\)](#)

Weeds Australia - [www.weeds.org.au](http://www.weeds.org.au)

The Lake Macquarie Landcare website - [www.lakemacquarielandcare.org](http://www.lakemacquarielandcare.org)

provides links to newsletters, environmental programs, grants, Landcare, weeds and trees.

If you wish to know more about this and other projects in Lake Macquarie please contact the Landcare Resource Centre.

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