

Managing for a sustainable environment

Pittwater and Warringah Councils jointly manage the lagoon as a sustainable system using management plans for the estuary, entrance and floodplain. The 'Lagoonwatch' system monitors and predicts when the lagoon should be manually opened to avoid flooding. See www.mhl.nsw.gov.au/www/lw_start.html

Current projects include:

- **Narrabeen Lagoon Sustainable Catchment Project:** \$1.9m state funding to 2010 to restore the catchment, especially Middle, Mullet & Nareen Creeks focussing on: degraded areas & banks, stormwater pollution, bush regeneration, biodiversity, recreation & education in sustainable living. Supported by various Pittwater and Warringah Council initiatives. See www.warringah.nsw.gov.au/environment/NarrabeenLagoon-C-Project.aspx
- **Lagoon Restoration Project:** To restore natural lagoon bed levels in the central & western basins & Middle Creek for stability, water quality & flows, seagrass recovery & recreation. See www.warringah.nsw.gov.au/community/narrabeen_lagon.aspx
- **Stormwater harvesting proposals:** To conserve water and irrigate sporting fields/parks.
- **Management plans/projects:** For reserves to conserve nature and improve recreation.
- **Lagoon entrance management review:** On opening & closing the entrance.

Other agency efforts:

- **Crown land:** Over 600ha is the focus of investigation and management planning.
- **Sewerage:** Reduce odours at the STP; effluent reuse; repair overflow points in the catchment.
- **Garigal National Park:** Developing the Management Plan and trail protection

Help protect and restore this unique environment

To help your waterways, bushland and wildlife, try these helpful hints:



- **Remember the drain is just for rain.**
- **Reduce water & chemical use:** Use 'No Phosphate' detergents and native plants.
- Use companion plants, low toxic sprays and low-phosphorus slow-release fertilisers (not liquid).
- **Encourage native animals:** Plant a native garden or lawn. Make a frog pond, keep logs and rocks for lizard habitat. (Remember Blue tongue lizards eat garden pests and snails).
- **Reduce erosion:** Cover bare soil or sand with a tarp, mulch or plants.
- **On building sites:** Use sediment & erosion controls.
- **Reduce, Reuse, Recycle your Waste:** For green waste put leaves, weeds and lawn clippings into mulch, compost or vegetation collection. Take unwanted chemicals/oil/batteries to Household Chemical CleanOuts. Don't dump!
- **Your car:** Wash on the lawn with a bucket. Fix up oil leaks. Don't pour oil/chemicals in drains.
- **Volunteer:** For one of many projects in bush/wetland restoration; wildlife monitoring & care; water monitoring, Landcare & Coastcare; education, cleanup days, tours, lobbying & planning.

Narrabeen Lagoon

Walking Map and Natural Features

Narrabeen Lagoon is located on the Northern Beaches. Valued for its tranquility, parks and natural beauty, the lagoon environs are used by over 1000 people every day. At 2.5km² in area it is the largest coastal lagoon in Sydney. The catchment area is 55km², half of which is bushland supporting immense biodiversity on the foreshores, creeks and beyond. It is treasured as a;



Watersports on Narrabeen Lagoon

- Habitat, refuge and nursery for diverse fauna
- Home to 1/3 of Sydney's bird species
- Stopover for migratory birds from the northern hemisphere
- 'Greenlink' corridor, linking restoration projects and walking tracks from Long Reef Headland, Dee Why Lagoon and South Creek to the Warriewood Wetlands.

Changes Over Time

The lagoon was formed some 6500 years ago when sea levels stabilised, depositing the Collaroy-Narrabeen sand barrier. The sandstone catchment was densely vegetated and inhabited by the Guringai peoples who depended on abundant seafood, animals and bushfoods. Early accounts indicate the lagoon had clear water and a sandy bed. It was closed for long periods resulting in higher water levels; it was 2-4m deep and it was possible to row a small boat some 3km up Middle Creek. The fringing reed beds were larger and connected to vast wetlands in Warriewood.

European settlement in this area began with the first visit in 1789. By the early 1900s there were scattered houses and farms. From the 1940-1970s rapid urban development led to high runoff and siltation - the lagoon declined in depth, water quality, seagrasses, fishlife and water-sports. Several major storms and floods also occurred. Over time, the lagoon bed changed markedly - depths now vary from less than 1m at sandbars and basin areas to 6m in the deepest dredge holes near Sanctuary Island.



Playgrounds on the foreshore



View from Narrabeen Headland



HIGHLIGHTS FROM THE ESCARPMENT TO THE ESTUARY

The catchment is dominated by broad sandstone ridges with rocky outcrops (left) steep creek lines & secluded waterfalls (top right). **Waterfalls** are found at Oxford Falls trail, Deep Creek, Mullet Creek, Irrawong Reserve, Wheeler Creek & the Cascades in Jamieson Park. **Bushland** areas include 14 communities of regional or national significance eg. Duffys Forest, Swamp Mahogany, Bangalay Forest and Angophora Woodlands. They are home to abundant **fauna** such as swamp wallabies, echidnas, possums, gliders, bandicoots, various reptiles & many threatened species. **Visit** Narrabeen Head Walking Track, part of the Bicentennial Coastal Walking Trails for a stunning coastal view.

Call the Coastal Environment Centre for guided eco-events, walking maps, bird lists & books (e.g. Warriewood Wetlands, Deep Creek and Coastal walking tracks)



Deep Creek Reserve (39ha)

Has striking rock outcrops & woodland of Angophora & grasstrees. Popular for its picnic & dog-training grounds, waterfall & birdwatching. Deep waters attract kayakers (left).

Enter by Wakehurst Parkway or walk from Bilarong Reserve.



Jamieson Park Trail (43 ha)

A trail 7km long, along the southern foreshore, is great for cycling, treks & leashed dog walks (right), picnics & sailing. The park has glades of Cabbage Tree Palms & tree ferns (left), endangered Coastal Swamp Forest, rare Bangalay Forests and the Cascades waterfall.

Enter via James Wheeler Place or the Esplanade.



Wetlands

The area has two rare coastal wetlands: a small freshwater swamp on the Deep Creek floodplain & the Warriewood Wetlands (left), the largest remaining sandplain wetland in Sydney (26 ha). Warriewood Wetlands has a variety of habitats including fresh & brackish wetlands & the rare Swamp Mahogany woodland. It is of regional conservation value, supporting 150 bird species & other fauna, some are threatened or migrate yearly from the northern hemisphere.

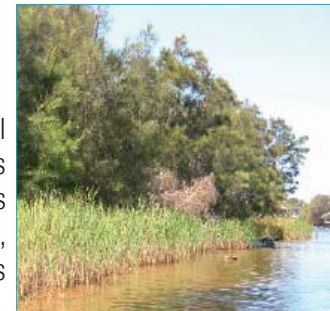
Popular for walks, breakfast with the birds, spotlighting & Streamwatch.

Enter via Jacksons Rd & Katoa Close, Warriewood for access to the boardwalk (left) and walk through to the adjacent Irrawong Reserve with waterfalls.



Birds

The 'Birds of Warriewood Wetland & Irrawong Reserve' is a valuable guide with colour photos of the habitats & the 95 most commonly-seen birds in the wetland, and beyond for the whole Narrabeen Lagoon catchment. Available from the CEC.



Foreshores

The foreshores (right) are stabilised by native plants of regional conservation value – Swamp Sheoak Casuarina trees, tall Phragmites reeds, spiky Juncus & submerged seagrasses. The foreshores, islands & waters are nursery & feeding grounds for local waterbirds (eg. ducks, herons, plovers), occasional Black Swans, Ospreys & migrating birds from the northern hemisphere (eg. shore birds from Russia).

Seagrasses (below) along with algae, are the basis of life for over 30 fish species, prawns & other invertebrates. The lagoon is a nursery for fish that go on to mature in the ocean.



The Lagoon bed was dredged from 1911 to the 1980's, primarily in the eastern channel. Some 2 million tonnes of removed sediment was used to fill marshes on foreshores, land for schools, Lakeside Park and Warriewood Square.

Ocean waves and currents move sand north along the beach into the lagoon entrance, closing it naturally. The entrance has been cleared of this built-up sand around the Ocean St bridge every 3-4 years for some decades. Clearing it encourages an open entrance, and a tidal system, improving water quality and reducing flooding. The sand is trucked back to Collaroy beach to help protect properties from storm damage. The entrance itself is also manually opened when water levels are rising and flooding is likely, based on real time monitoring and prediction of water levels and weather.

Water Quality

The eastern channel is flushed daily by tidal waters, while the western basin in particular is dominated by creek runoff. In the past stormwater and septic runoff caused major algal blooms and odours, but this is now rare due to reticulated sewerage and the management of the entrance and catchment. Remedial measures include development and erosion controls, stormwater quality devices (such as gross pollutant traps) and water-sensitive urban design. There may be seasonal odours or foam from seagrass debris or algae, for instance as westerly winds in winter blow debris to pockets of the lagoon, but this is a natural process. Today typical stormwater pollutants include 23% sediment, 30% litter, 45% organic matter (eg. leaves) and dissolved chemicals. As the community and Councils work together, we can do much to improve water quality and lagoon health.

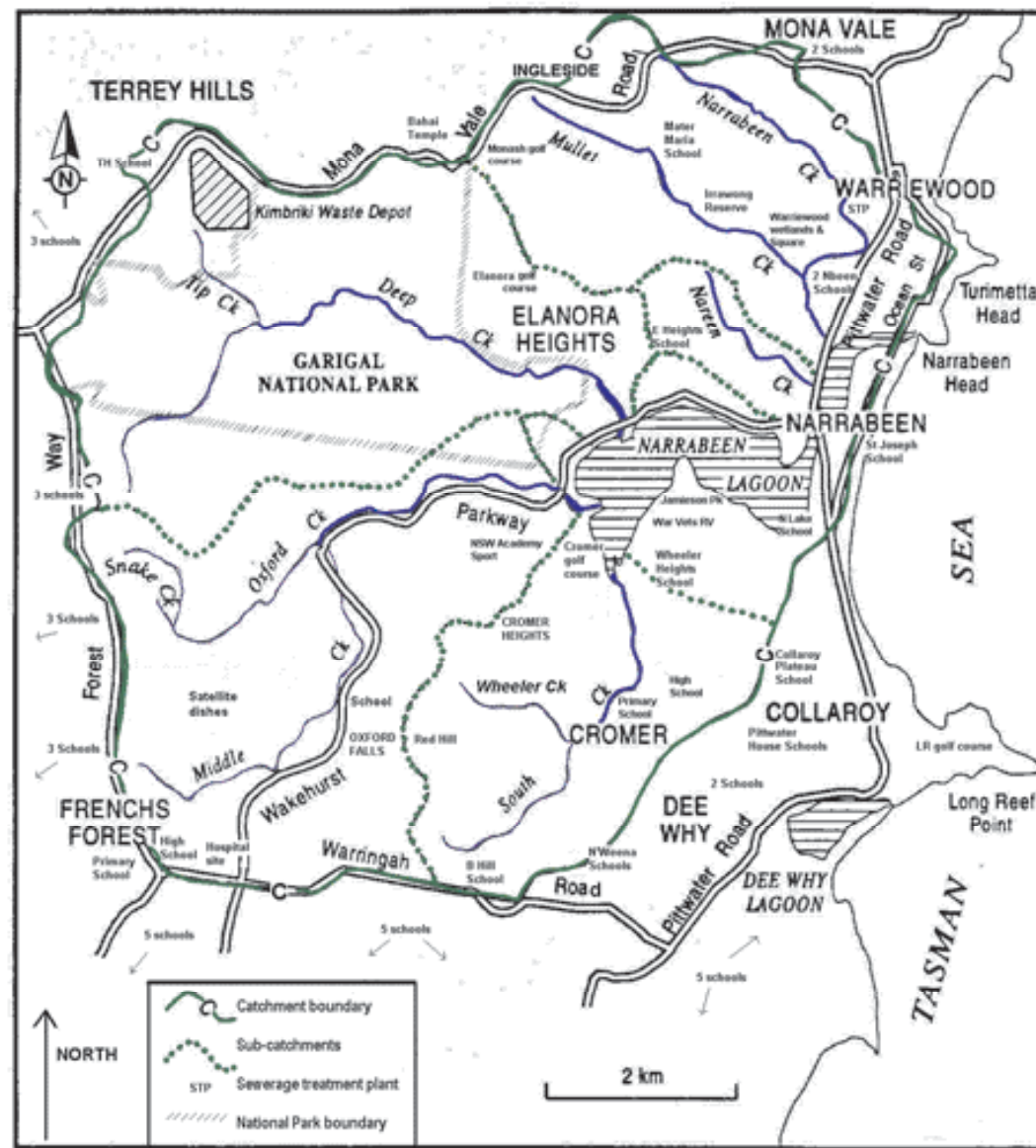


Useful Contacts

- **Report pollution or environmental problems** to Pittwater Council (for north of lagoon) Ph: 9970 1111, or Warringah Council (for other areas and the lagoon waters) Ph: 9942 2111.
- **Report injured wildlife 24/7** to Sydney Wildlife Ph: 9413 4300 or WIRES 1800 641 188.
- **Report speeding watercraft & license no.**, NSW Maritime Ph: 131 256, 7days to 4.30pm
- **Garigal National Park** Ph: 9451 3479 Rangers at Forestville for trail details for 10km walk from Morgan Rd to Deep Creek Reserve, through impressive bush and sandstone country with great water views. Biking is prohibited from various trails due to erosion.
- **Council and community groups** that help protect the environment, run activities, walks information, volunteer projects e.g. bush regeneration, Creekcare, cleanup days & bird surveys:
 1. **Coastal Environment Centre (CEC)**, Narrabeen, Pittwater Council Ph: 9970 1675: Activities & workshops, info on sustainable living & fishing; environment shop & library. Open 6 days. Entry via Lake Park Rd & Pelican Path. See www.pittwater.nsw.gov.au/environment/cec
 2. **Narrabeen Lagoon Sustainable Catchment Project** until 2010: Education Officer Ph: 9942 2580. See these & Hilltop to Headland eco-events listed at www.warringah.nsw.gov.au
 3. **Friends of Narrabeen Lagoon Catchment** Ph: 9905 2135 www.narrabeenlagoon.org.au and **Pittwater Natural Heritage Association** Ph: 9918 3368 www.pnha.org.au Community groups & active campaigners with many activities, walks & eco-paddles

To learn about, or help restore, your local environment; refer to:

- 'Narrabeen Lagoon Catchment Area' 30 page colour booklet available from the Coastal Environment Centre (CEC) & Warringah Council.
- The 'Useful Contacts' box, come along to an eco-event, join a project.



Map 1 - Narrabeen Lagoon Catchment

The catchment has 5 major subcatchments with 10 main creeks and several unique wetlands. It takes in environmental protection, urban and semi-rural land zones, Crown and Aboriginal land as well as part of Garigal National Park.

MAP 2 - NARRABEEN LAGOON FEATURES AND PROPOSED NETWORK OF TRAILS

PELICAN PATH TRAIL







View the lagoon entrance and coastline from Narrabeen Head Lookout. Visit the rock platform, swim or fish in the east channel, walk to the Coastal Environment Centre and onto Mullet Creek and Warriewood Wetlands.

DEEP CREEK TRAIL

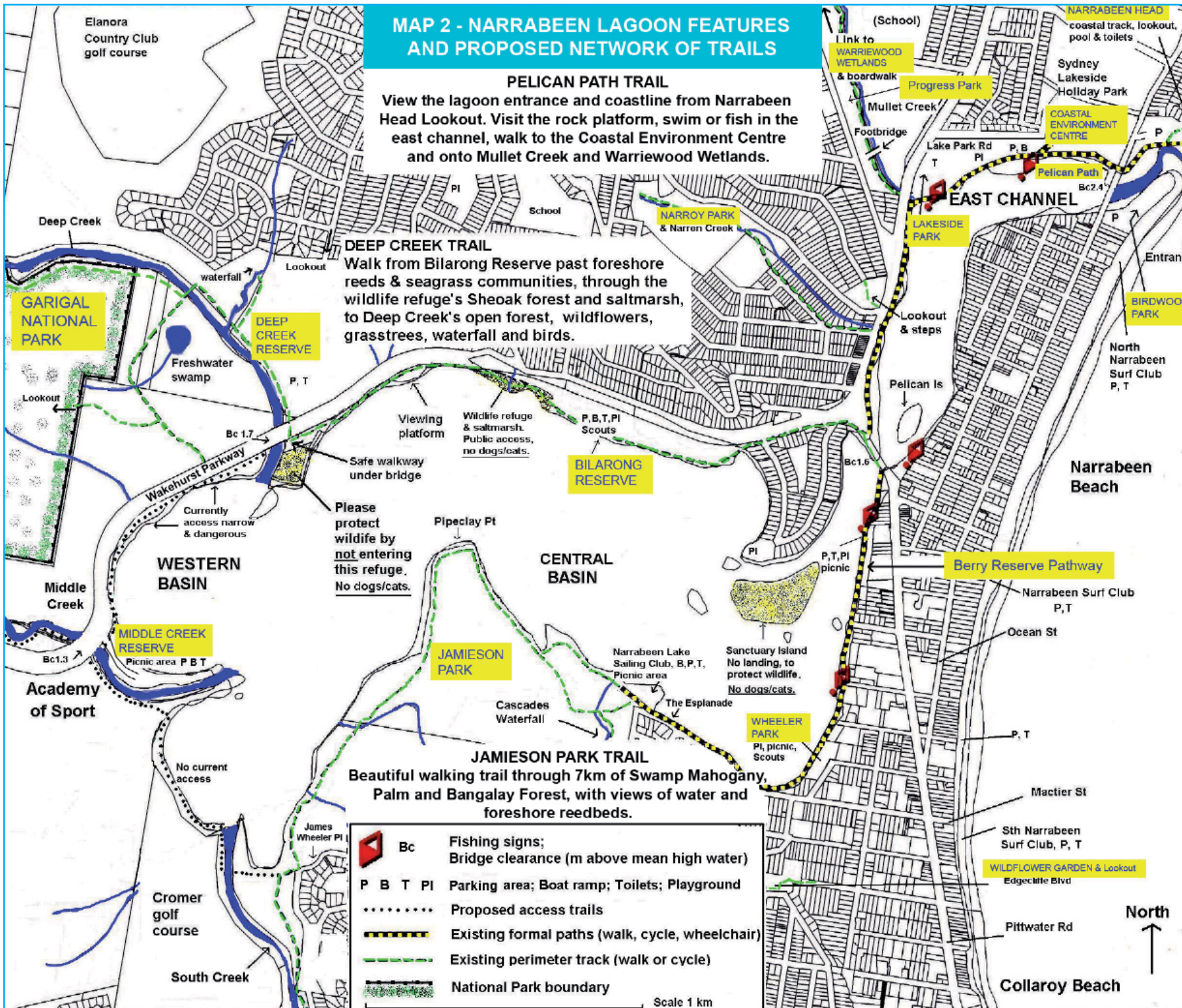
Walk from Bilarong Reserve past foreshore reeds & seagrass communities, through the wildlife refuge's Sheoak forest and saltmarsh, to Deep Creek's open forest, wildflowers, grasses, waterfall and birds.

JAMIESON PARK TRAIL

Beautiful walking trail through 7km of Swamp Mahogany, Palm and Bangalay Forest, with views of water and foreshore reedbeds.

	Bc	Fishing signs; Bridge clearance (m above mean high water)
	P B T PI	Parking area; Boat ramp; Toilets; Playground
		Proposed access trails
		Existing formal paths (walk, cycle, wheelchair)
		Existing perimeter track (walk or cycle)
		National Park boundary

Scale 1 km



Enjoy your experience

Walk & picnic: Wear sturdy shoes and insect repellent. Please don't litter or feed animals or birds as it makes them sick and encourages feral birds and rodents to flourish.

Cycle: Share the path thoughtfully, slow down near walkers and use your bell. To reduce erosion, use formed tracks only and help repair tracks. For permitted trails & advice see nobmob.com/rides/oxfordfalls

Fishing & Boating: Don't cast lines near birds or leave lines unattended. Dispose waste in TAngler Bins. Check bag limits. Reduce shore erosion, wash and protect seagrass beds – keep to the 8 knot speed limit (walking pace).

Pets: Deep Creek & Progress Park are dog exercise areas. Dogs must be leashed to access most areas, but are not permitted on beaches, wildlife refuges or National Park. Please don't disturb feeding or nesting fauna (especially on foreshores & islands) as they may abandon the area. Pick up pet droppings & dispose of in a bin. Keep cats inside at night.



The Coastal Environment Centre