

Moreton Bay & Islands catchment



MORETON BAY AND ISLANDS

The Moreton Bay and Islands cover over 1523 km² from Caloundra to the Gold Coast.

Moreton Bay is one of Australia's largest estuarine bays, including the Pumicestone Passage and islands of Moreton, North and South Stradbroke, Bribie and numerous others.

Healthy Land & Water works in partnership with landholders, government, corporate businesses, Traditional Owners, education and research organisations, schools and community groups to protect, repair and rehabilitate the catchments of South East Queensland.

A large proportion of the work on the ground is achieved by landholders and volunteers involved in community groups, such as Moreton Bay Coastcare, Moreton Island Protection Committee, Erapah Creek Landcare and Coastcare Group and Queensland Wader Study Group.

There are also numerous Coastcare, Bushcare, "Friends of" and Progress groups surrounding Moreton Bay.

Managing biodiversity

Biodiversity refers to the variety of all life forms - the different plants, animals, and the ecosystems of which they form a part.¹

Moreton Bay is one of the largest estuarine bays in Australia and has a rich diversity of terrestrial and marine habitats. Many different plant and animal life exist in the bay, including over 1000 fish species and six of the world's seven species of marine turtles.²

The critically endangered Grey Nurse Shark and Beach Stone Curlew, vulnerable Manta Ray, rare Indo-Pacific Humpback Dolphin, among others, need healthy marine and terrestrial environments alike allowing species to migrate and adapt to different environments and changing climatic conditions.

Environmental land-based and aquatic weeds and pest animals typically outcompete native species, causing declines in local populations.

The Moreton Bay Marine Park covers the bay and islands area and includes zones to restrict disturbance to threatened marine life. Recognised as an internationally significant wetland under the Ramsar convention, Moreton Bay is one of Australia's top 12 shorebird habitats. Thousands of migratory wader birds flock to roost each year between September and April.



NATURAL ASSETS



Coastal and marine areas



Biodiversity



Productive land



Natural areas



Waterways

In an effort to protect and restore the important biodiversity and other natural assets, Healthy Land & Water works with Coastcare, Landcare, catchment and conservation groups across Moreton Bay and islands to enhance aquatic and marine ecosystems and riparian corridors.

Activities include mapping priority management areas, removing weeds and marine algal blooms, planting native plants, monitoring water quality, creating habitats for native animals and plants, and supporting landholders to undertake sustainable land management practices.

The voluntary Land for Wildlife program also enhances biodiversity values as landholders agree to manage their land in ways that protect and enhance wildlife habitat.

There are more than 140 landholders in the bay and islands area participating in this program, which is coordinated by Healthy Land and Water and delivered across the area by Moreton Bay and Sunshine Coast Regional Councils, and Brisbane, Redlands and Gold Coast City Councils.

Managing aquatic, marine, and terrestrial environments

Moreton Bay and the Islands consist of open ocean, sandy beaches, rocky shores, coral reefs, seagrass and sponge beds, mangrove forests, mudflats and sandbanks; along with lifestyle blocks, urban development, industry (including sand mining) and natural areas. Protected natural areas surrounding Moreton Bay Marine Park include the National Parks of Moreton Island, Peel Island and Bribie Island, and Reserve of Boondall Wetlands, St Helena Island and Green Island.

Terrestrial, aquatic and marine environments face increasing challenges in parts of the catchment. Climate change predictions suggest that impacts over the coming decades are expected to include more intensive storms, rising sea levels leading to coastal flooding and erosion, and temperature rises leading to habitat loss for many native species. The Intergovernmental Panel on Climate Change (IPCC) has projected that Queensland's coastline can expect a sea level rise of up to 79cm by the year 2100 and increased threats posed by storm surges.

These threats are likely to impact on low lying areas, such as shoreline erosion, ocean acidification and freshwater flooding, and increased pressure on marine and terrestrial biodiversity, corals and fish stocks and undermine the values of beaches.³



Manta ray



White-faced heron



Buckley's Hole, Bribie Island



Seagrass watch





Challenges

Challenges for managing catchment health are on the rise as land uses change, pollution increases, and recreational and commercial use of the waterways becomes more popular. Loss of mangroves in the bay has been particularly prevalent and consequently has reduced mangrove functions such as trapping sediment, reducing erosion and providing a breeding ground and nursery for migratory birds, fish and other species.²

Moreton Bay is now one of the most intensively fished areas along Queensland's coastline and is vulnerable to overfishing. As this valuable area is host to one third of Queensland's recreational fishing activities, the pressures on this area is becoming increasingly evident.³ Healthy Land & Water has worked together with the Moreton Bay Seafood Association to develop a voluntary environmental management system to encourage sustainable practices among commercial fishermen operating in the bay.

Major river systems entering Moreton Bay carry with them high sediment loads, nutrient concentrations and storm water runoff affecting the ecosystems.

To date, approximately 20 percent of the seagrass beds have been lost due to the increased turbidity in the water, including over 2000 hectares from Deception Bay in the last 100 years. Excessive nutrient loads have given rise to more frequent toxic algal (*Lyngbya*) blooms in the bay.²

Healthy Land & Water works collaboratively with various partners on a number of monitoring and rehabilitation projects in our coastal and marine environments, including dune erosion monitoring and rehabilitation, salt marsh monitoring and protecting estuarine and mangrove areas. Healthy Land and Water also supports a variety of research projects including establishing artificial roosts for migratory birds, monitoring the health of manta ray, dugong and turtle populations and studying the ecology of sandy beach environments. This research will be used to inform improved practices to managing coastal and marine environments of Moreton Bay and the islands.

Sustainable land management practices can reduce degradation and increase productivity, in part by maximising groundcover to reduce exposed soil and erosion, retain groundwater and halt sediment flow into the waterways and marine environments. Healthy Land and Water, Queensland Parks and Wildlife Service, Rural Fire Brigades at North Stradbroke Island and the Queensland Fire and Rescue Service have worked cooperatively with local Indigenous community members to develop a fire management plan towards enhancing the health of the land and waterways. Indigenous locals have further undertaken training in fire management and park ranger roles to enhance their work on country, including weed removal, replanting and other remediation practices.

MAJOR THREATS



Climate change



Population growth and development



Unsustainable land use



Pollution



Habitat fragmentation



Weeds and pest animals



Inappropriate use of fire



Environmentally friendly moorings

Managing water quality

Fishing, boating and other recreational activities can cause physical damage to animals and their habitats. The number of turtles and dugongs killed by boat strikes and disturbances by boat traffic to dugong feeding patterns has increased in Moreton Bay.² Migratory birds can be disturbed by boats, animals and vehicles, which can reduce their energy reserves and feeding time needed for preparation for the long flight back to the Northern Hemisphere.

Healthy water quality is important for maintaining the health of the catchment and all that lives in it. Sustainable land management practices, including the protection of riparian species, play a significant role in stabilising creek and riverbanks and maintaining waterway health. Efforts to improve water quality in the region's southern catchments have been undertaken through the "Healthy Country" demonstration project, using the best available science to identify ways to reduce rural sediment runoff and pollutant loads entering Moreton Bay. The program involves collaborative research, waterway restoration and sustainable land management, including field trials. This project is a partnership between Healthy Land & Water, the Queensland Government's Department of Environment and Resource Management and Department of Employment, Economic Development, South East Queensland Traditional Owners Alliance, and the community.

Efforts to build resilience and monitor marine areas affected throughout Moreton Bay and the Sunshine Coast by the Pacific Adventurer oil spill in March 2009 have also been undertaken by many volunteers and agencies with support from Healthy Land and Water and the Australian Government Caring for our Country initiative.

Healthy Land & Water and partners have also been trialling seagrass-friendly boat moorings to protect seagrass meadows in Moreton Bay. The results of this trial will provide information on seagrass-friendly moorings to reduce future impacts on these sensitive marine areas.

Seagrass is an indicator species used to monitor the health of land and marine environments. Healthy Land & Water also supports the community-based Seagrass Watch program to monitor the size and health of seagrass meadows and use the information to identify changes over time.

The dugong: a unique mammal under threat

Dugongs (*Dugong dugon*) existed in their tens of thousands in Moreton Bay prior to European settlement; today there are only 600 to 800 remaining.⁵ The decline of this gentle sea mammal has largely resulted from a combination of seagrass loss and physical damage from boat strikes and entanglement in fishing equipment.

Often referred to as 'sea cows', dugongs eat about 30 kilograms of seagrass per day. The reduction of sea grass in Moreton Bay has made it difficult for dugongs to accommodate their dietary needs. This decline is attributed to sediments entering Moreton Bay from our catchments making the water turbid and shading the sea grass so it can no longer grow.

Dugongs are classed as "keystone" species in seagrass communities. This means that if the dugongs are removed from seagrass ecosystems, seagrass will die off to the point of local extinction.

Efforts are being made by Healthy Land & Water and partners to protect seagrass beds and dugong habitats from disturbance.



Dugong grazing on seagrass

REFERENCES

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