

Hexham Swamp Rehabilitation Project

Bringing back the tide restores healthy, productive wetlands in Hexham Swamp

Hexham Swamp Rehabilitation Project involved reinstating tidal flow from the Hunter River by opening floodgates on Ironbark Creek with the aim to restore valuable estuarine wetlands.

Hexham Swamp is located near Newcastle and covers a vast area of almost 2000 ha. The swamp supports a range of wetland types including mangroves and saltmarsh – an endangered ecological community.



The traditional Aboriginal name for Hexham Swamp is Burraghinhbihng. The Awabakal and Worimi people used the vast resources provided by the productive wetlands for food and resources.

Habitat restoration

The project is restoring nursery habitat for juvenile fish and prawns and provides important habitat for waterbirds, including migratory shorebirds. From Australian shores to the Arctic Circle, migratory shorebirds fly the length of the East Asian-Australasian Flyway to breed each year.

The Sharp-tailed Sandpiper flies an incredible 12,000 kms from Arctic Siberia to the Hunter estuary wetlands for the summer migration. Protected under international agreements, Hexham Swamp provides feeding grounds and shelter for these birds to prepare for the long return journey.

History

Originally installed on Ironbark Creek in the early 1970s as part of the Lower Hunter Flood Mitigation Scheme, the floodgates were designed to prevent floodwater from the Hunter River entering the swamp.

However, the floodgates were permanently shut to eliminate tidal flows and the negative environmental impacts became evident almost immediately, with notable reductions in fish, prawns and birds due to changes in water quality and vegetation communities.



'Saltmarsh and mudflats are ecologically important communities and provide habitat for migratory shorebirds including the Sharp-tailed Sandpiper'
Ann Lindsey, Hunter Bird Observers Club

In response to increasing concern from the community and fishing industry, the Ironbark Creek Total Catchment Management Strategy was prepared in 1996, and the rehabilitation project was proposed.

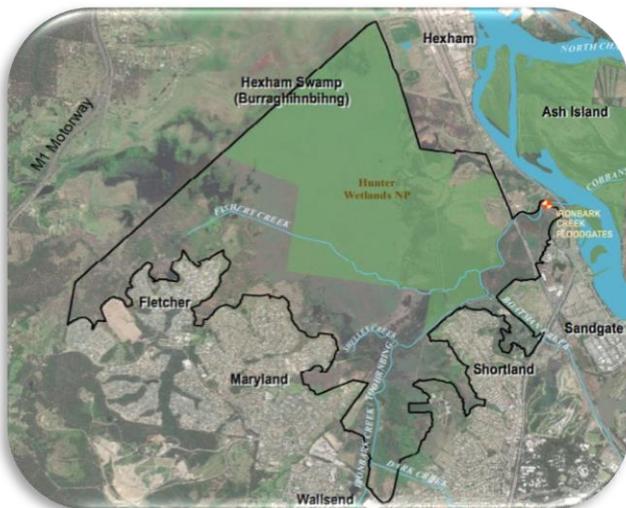
The early stages involved collection of baseline data. This included a vegetation survey in 2005 compared to pre-floodgate surveys (1966). The survey found the area of mangroves had reduced from 180 ha to 11 ha, saltmarsh had reduced from 681 ha to 58 ha, tidal mudflats and shallow ponds had reduced from 59 ha to 1 ha and the freshwater reed *Phragmites australis* had expanded in range from 170 ha to over 1005 ha.

Project Approval for Floodgate Opening

After 12 years of planning, research and stakeholder consultation, the rehabilitation project was approved by the NSW Department of Planning in 2006. The gates were progressively opened from 2008 to 2013, in four stages, to gradually re-introduce saltwater tidal flows from the Hunter River at Hexham.



Rigorous monitoring at each stage was conducted including surveys of water quality, inundation extent, vegetation changes, fish and prawn assemblages, bird counts and mosquito monitoring. The total cost of the project to date is \$7 million for ecological surveys, low lying land acquisition of 700 ha and bund construction. The complex process required innovative methods including the development of easements for inundation.



Part of the Hunter Wetlands National Park is within Hexham Swamp project area managed by Hunter LLS

Environmental Monitoring

Environmental monitoring continues today, managed by Hunter Local Land services in accordance with NSW state government requirements. The most recent surveys of vegetation communities and mosquitoes were conducted in 2020-21 and seasonal sampling of fish and crustaceans and creekbank condition assessment was conducted in 2021-22. Results showed estuarine habitat has improved and continues to develop and increase in area.



'Commercially important species of fish and prawns are returning to Ironbark Creek, with the restoration of nursery habitat' Dr. Craig Boys, Principal Research Scientist, DPI Fisheries

The vegetation survey in 2021 found the area of mangroves had increased to 185 ha, saltmarsh to 109 ha and tidal mudflats and shallow ponds to 135 ha. The area of freshwater reed has reduced to 792 ha.

The vegetation mapping indicates a continuing transition of habitat in a mosaic fashion including mangrove recruitment and expansion of saltmarsh, ponds, channels and mudflats. These estuarine wetland habitats cover 520 ha in 2021, approaching the predicted minimum increase of 600 ha. The next vegetation survey will be conducted in 2025.

For more information

Please call Hunter Local Land Services 1300 795 299
Visit our website - www.lls.nsw.gov.au/regions/hunter