

Muir-Byenup Ramsar wetlands: Are they changing?

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Many wetlands globally, including Ramsar sites, are impacted by threats (human and natural) and are currently at risk of losing their ecological character. The Muir-Byenup wetlands is one such Ramsar site where a possible change in ecological character has been reported.

The Muir-Byenup wetland system is a suite of over thirty lakes and swamps. There is a large diversity in the natural communities from permanent to seasonal lakes, freshwater wetlands to primary salt lakes and rare peat systems. Many of the wetlands are listed in the Directory of Important Wetlands in Australia and in 2001 the southern suite of wetlands were declared a Ramsar site of international importance.

Over the years, various wetlands within this system have been threatened by salinity, acid-sulfate soils, eutrophication, grazing, introduced species, pests, inappropriate fire regimes and illegal vehicle access. In more recent years, there has been the added threat of water level change, as a result of a drying climate.

Since being listed as a Ramsar site there have been a number of changes within the wetland system relating to aquatic invertebrate communities, distribution of some fish species and condition of fringing vegetation. Although these lakes are naturally highly variable, long-term monitoring (~35yrs) has indicated changes in depth, pH and salinity occurring in several lakes. One peat lake in particular, Tordit-Gurruup Lagoon, has had record low water levels in recent years resulting in a dramatic increase in salinity and acidity. After an acidification event in 2013, the ecological value of this wetland is under threat and requires assessment.



Tordit-Gurruup Lagoon (J. Higbid)

An investigation is underway to obtain a better understanding of the ecology and hydrology of the Muir-Byenup wetland system, so the status of the site can be updated and management better informed to maintain the site's ecological character. In 2014–2015 an invertebrate survey (along with water chemistry) was carried out to determine if changes have occurred in the invertebrate composition since previous surveys (1996–97 and 2003–04). Data analysis is incomplete, however preliminary findings indicate some changes in invertebrate composition and richness may have occurred in some wetlands.

While some management works can be implemented now, planning for many interventions depends on understanding the hydrological changes within the system and the chemistry of the wetland

sediments. In 2015, a three year investigation into the hydrodynamics and hydrogeochemistry of Byenup Lagoon system was initiated.

The Muir-Byenup wetlands are a complex set of unique and highly important wetland assemblages with an equally complex hydrology. An important challenge over the next decade will be to successfully model and manage the key wetlands to maintain these highly important biodiversity assets.

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Peat cracking (M. Pennifold)