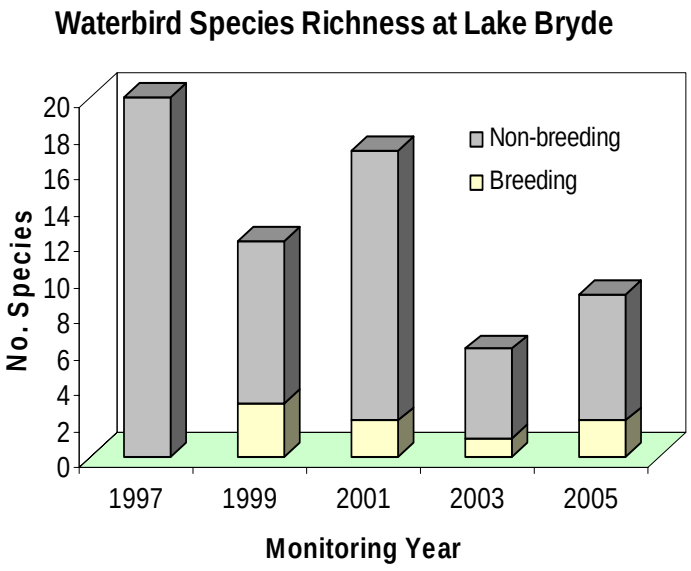
Lake Bryde Waterbirds

The Wheatbelt Wetlands Monitoring Program

The Wheatbelt Wetlands monitoring program commenced in 1997 with 5 wetlands and was expanded to 25 wetlands by 1999. Lake Bryde was first surveyed in 1997 as one of the original pilot study wetlands (see Halse et al 2002). Each wetland in the program is surveyed every second year for aquatic invertebrates and waterbirds and water chemistry and ground water parameters are measured. Waterbirds are surveyed using binoculars and a spotting scope to count all birds present. When the lake is very full (e.g. autumn 2006) a small boat is used to gain greater access to all parts of the lake. Evidence of breeding is recorded when observed, i.e. broods or nests with eggs, however, nests are not searched for and these data will be incomplete.

Waterbirds at Lake Bryde were surveyed in late Winter (August), Spring (October) and Autumn (March) of each sampling year since 1997, i.e. 1997, 1999, 2001, 2003 and 2005.



A total of 26 species have been recorded over the monitoring period with up to 20 species per year. The number of species present for individual surveys was correlated with both lake depth and salinity ($r = 0.58$ and $r = -0.61$ df 9 $p < 0.05$ respectively). While species richness increased with greater water depth, the relationship was not a strong one; the greatest richness of 17 species was recorded at a depth of 0.7 m, while at the greatest depth of 1.82 m only 9 species were recorded. At low water depth, where salinity increased dramatically, species richness was minimal and it was this negative relationship with salinity which was strongest.

Four species have been recorded breeding; the Australian Shelduck, Grey Teal, Eurasian Coot and Black-winged Stilt. Breeding occurred at the full range of recorded depths and in all seasons with relative species abundances providing the only pattern. However, the number of breeding records was greatest at high water levels.

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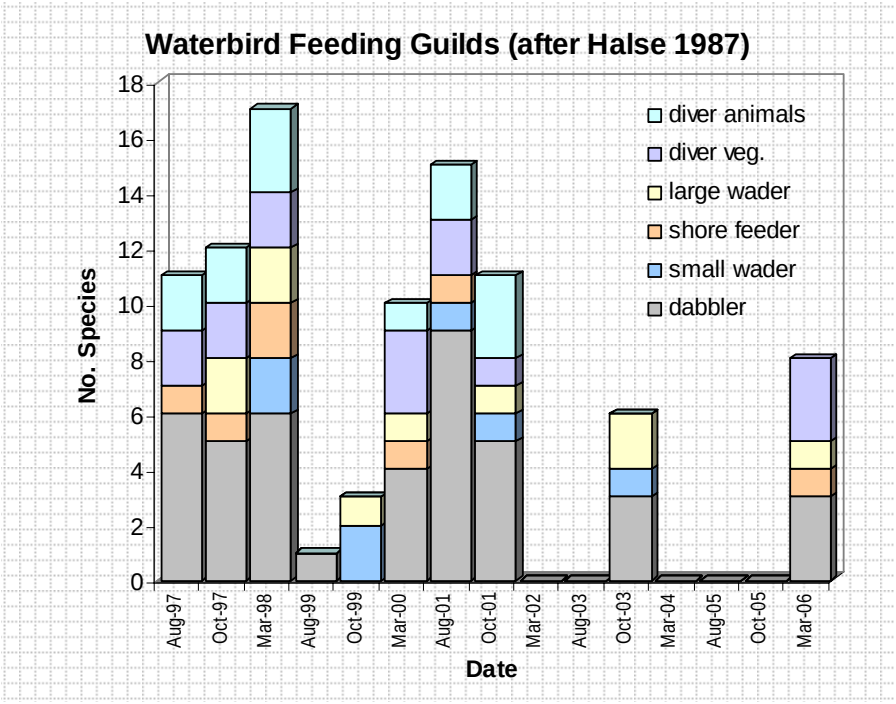

The distribution of species richness across functional feeding groups gives an indication of the available niches for waterbirds at Lake Bryde. When the lake had low water levels few species were present and waders dominated because they were able to make use of the extensive shallows. At higher water levels Lake Bryde supported a range of functional feeding groups many of which are represented by multiple species. Dabblers, principally ducks, dominated at higher water levels with between three and nine species present. Diver species were restricted to periods when lake depth exceeded 0.5 m.

TABLE 1 Waterbird species list for Lake Bryde compiled from three surveys for each sampling year except 2001 when the lake was dry in autumn and 2004 and 2005 when only a single survey was completed. % Occurrence is the proportion of surveys with depth greater than 0 m, for which the species was recorded.

Species	% Occ.	Species	% Occ.
Australian Shelduck	80	Banded Stilt	30
Grey Teal	80	Freckled Duck	20
Pacific Black Duck	80	Hardhead	20
Eurasian Coot	70	Blue-billed Duck	20
White-faced Heron	70	Black-fronted Dotterel	20
Hoary-headed Grebe	60	Chestnut Teal	10
Musk Duck	60	Darter	10
Masked Lapwing	60	Australasian Bittern	10
Pink-eared Duck	50	White-necked Heron	10
Australasian Shoveler	40	Yellow-billed Spoonbill	10
Black Swan	40	Australian Wood Duck	10
Little Pied Cormorant	40	Black-winged Stilt	10
Australasian Grebe	30	Red-necked Stint	10

Further reading:

Cale D.J., Halse S.A. and Walker C.D. (2005) Wetland monitoring in the Wheatbelt of Western Australia: site descriptions, waterbird, aquatic invertebrate and groundwater data. *Cons. Sci. W. Aust.* **5** (1): 20-135

Halse S.A. (1987*) Probable effect of increased salinity on the waterbirds of Lake Toolibin.* Technical Report No. 15. Dept. Conservation and Land Management, Perth Western Australia.