

**LOW-TIDE SURVEY OF SHOREBIRDS AT TOONDAH
HARBOUR WITHIN THE MORETON BAY MARINE PARK
DURING THE SUMMER 2016-17**

**Robert Bush
(cphcrobert@gmail.com)**

Queensland Wader Study Group

Introduction

During the 2016-17 summer months, a low tide shorebird survey was undertaken at Toondah Harbour within the Moreton Bay Marine Park. The survey involved six counts of shorebirds (waders) and water birds undertaken between October 2016 and March 2017. The findings from this survey are reported here.

Moreton Bay Marine Park is a designated Ramsar site. It is one of a chain of internationally recognized sites across the East Asian-Australasian flyway that migratory shorebirds depend upon for their long-term survival. Moreton Bay is both a migration stop-over site and destination for migrating shorebirds during the southern hemisphere summer months.

The purpose of the survey was to collect information about the use of the Toondah Harbour area by shorebirds and water birds. The survey was done under the auspices of the Queensland Wader Study Group (QWSG). The QWSG has conducted surveys and regular counts along the Queensland coast and in particular within Moreton Bay for more than 25 years. This consistent collection of information from the field has made a major contribution to the scientific knowledge of migratory shorebirds and to conservation at local, national and international levels. This low tide survey was undertaken to gain additional information about the use of the existing tidal mudflats proposed to be developed as a residential, retail and small boat marina.

The survey area covered the proposed Toondah Harbour development site as it was described by the developer, Walker Group Holding Pty. Ltd. at the time the survey commenced in October 2016. The proposed development area was slightly changed in the information provided for public comment in May 2017 by the Australian Department of Environment and Energy (EPBE Reference No: 2017/7939). The new application allows for a 100m buffer between the landfill area and Cassim Island. However, the boundaries of the updated proposed development lie within the survey area and are not significantly different to that originally proposed in terms of the intertidal mudflats to be reclaimed for the development.

Low tide surveys such as this one provide information about the use of intertidal areas when migratory shorebirds have the greatest opportunity to use the full extent of the inter-tidal mudflats. It follows that observations can be used to determine whether the area for proposed development remains a relevant site for migratory shorebirds during a period when feeding is the main activity. Counts of dispersed shorebirds within a defined area such as this are usually lower than counts undertaken when the tide rises and there is less intertidal zone available.

Survey Method

The Site

Using publically available documents, the survey site was plotted onto Google Maps. The survey area was bounded on the western shoreline by the Stradbroke Ferry Terminal and the G. J. Walter Park. The low tide mudflat to the south of the navigation

channel to the ferry terminal with a width of 100 m and reaching out to 400 m formed the southern boundary. The northern boundary was from the northern end of the G. J. Walter Park stretching north-east over the inter-tidal mudflats by 400 m. The eastern boundary was a line approximately parallel with mangroves (see Google Map). For survey purposes the area within this boundary was segmented into 7 count zones. These areas generally formed natural mudflats separated by water channels. The southern count zone (1) is separated from the others zones by the deeper navigation channel. The eastern zones (2,3,4) are separated from the shoreline by a shallow channel and the remaining zones (5,6,7) are the intertidal mudflats adjacent to the shoreline.

Counting Method

Counts were conducted between 31 October 2016 and 15 March 2017, a period when migrating birds have arrived in Moreton Bay from their southern migration but not yet departed on their northern breeding migration. All counts were conducted within 1 hour either side of low tide. Counts took approximately 40 minutes to complete.

Two counting locations were used. Area (1) was counted from the public boat ramp beside the ferry terminal. All other areas (2 to 7) were counted from the shoreline at G. J. Walker Park adjacent to the public car park. Both locations provided a clear view of the survey area.

Any bird movement between counting zones was documented to avoid double counting.

Observations

All migratory shorebird species (e.g. Bar-tailed Godwit) and non-migratory species (e.g. Pied Oystercatcher) were counted, as well as all resident water birds, (e.g., Egrets and Silver Gulls).

Bird behaviour was also recorded as well as any sources of disturbance (people, water craft and dogs).

Findings

The Table below summarises the findings from the six counts undertaken over the course of the summer, 2016-17. The Table summarises the migratory shorebirds and water birds separately. The Table lists: Individual counts of each species within each sampling episode; the highest count over the survey period; and the areas within the surveyed area used by each species.

Species Diversity

During the count period, 6 migratory shorebird species, 2 resident shorebird species and 7 species of local water birds as well as 1 species of gull were observed within the site.

Two species present are listed as endangered. The Eastern Curlew is listed as critically endangered under the Commonwealth Environment Protection and

Biodiversity Conservation Act (1999) and the Bar-tailed Godwit was listed as endangered in May 2017 under the Queensland Nature Conservation Act (1992).

Other migratory waders present were the Grey-Tailed Tattler, Whimbrel, Terek Sandpiper and Common Greenshank. Pied Oystercatchers and Masked Lapwing are non-migratory resident waders that were present in the survey area over the summer period.

A small number of water birds use the water channels at low tide. Royal Spoonbill, Little and Great Egret, White Ibis and Striated Heron were observed. There were also Chestnut Teal, Little Pied Cormorant and Silver Gull within the survey area.

Prevalence, Distribution and Behaviour

Migratory shorebirds outnumbered the other species throughout all the summer counts across the survey area. The Grey-tailed Tattler was the most prevalent with feeding flocks both within the survey area and passing through to mudflats to the north and east of the study area.

Eastern Curlew were widely dispersed across areas adjacent to the navigation channel and the outer count zones (2,3,4). Whimbrel and Bar-tail Godwit are widely distributed over most of the survey site. Common Greenshank and Terek Sandpiper were present irregularly and in small numbers.

Of the resident shorebirds, a small number of Pied Oystercatchers were distributed widely throughout the site. Masked Lapwings were an occasional visitor to the site. All observed shorebirds use the site for feeding during low tide. The wide distribution of long billed shorebirds across the site suggests that food supply within the mudflats is widely distributed.

Water birds were generally present in the shallow water channels at low tide and feeding.

Overall, shorebirds tended to prefer the outer count zones (1,2,3,4) where they were engaged in feeding on the exposed mudflats.

Disturbance

Over a total of six visits with an estimated total time period of 120 minutes, two dogs were observed off leash and one person was walking within the survey site.

Summary

The proposed Toondah Harbour development site, within the Moreton Bay Marine Park (Ramsar site), is used during low tide as a feeding area by migratory shorebirds. Two listed endangered species, – the Eastern Curlew and the Bar-tailed Godwit – were present during all but one of the count observations. Other migratory and resident shorebirds and water birds used the site for feeding during low tides in the summer months.

The Toondah Harbour development site forms part of an intertidal mudflat used for feeding by migratory shorebirds during a period of recovery from their southern migration and in preparation for their northern migration. The site is recognised internationally as significant for these purposes (via the Ramsar Convention). The survey provides count data and field observations confirming the site's current relevance to migratory shorebird conservation.

TABLE: Shorebirds and water birds counts, highest count and zones observed at Toodah Harbour in the Summer of 2016-17

SPECIES	COUNT DATE						HIGHEST COUNT	ZONES
	SHOREBIRDS	31/10/2016	11/10/2016	12/08/2016	15/12/2016	1/01/2017		
Eastern Curlew	0	1	4	5	6	2	6	1,2,7
Whimbrel	18	9	4	13	4	5	18	1,2,3,4,5,6,7
Bar-tailed Godwit	15	6	5	12	9	6	15	1,2,3,5,6,7
Terek Sandpiper	0	7	0	0	0	0	7	1
Pied Oystercatcher	6	3	0	2	1	18	18	1,3,4,6
Masked Lapwing	0	0	2	0	0	1	2	2
Grey-Tailed Tattler	15	0	4	0	32	5	32	4,5
Common reenshank	0	4	0	0	0	0	4	6
TOTAL	54	30	19	32	52	37		
WATERBIRDS								
Royal Spoonbill	5	1	1	0	0	0	5	2
Little Egret	0	0	0	0	0	1	1	7
Great Egret	3	0	0	3	3	1	3	2,3
Chestnut Teal	0	0	3	0	0	0	3	1
White Ibis	0	2	1	1	7	1	7	2,5,7
Little Pied Cormorant	0	0	0	0	1	0	1	4
Striated Heron	0	1	0	0	2	0	1	7
Silver Gull	0	2	0	2	4	1	4	7
TOTAL	8	4	5	4	13	3		

MAP: Toondah Harbour Survey Site and Count Zones

