

Our ref: 12648526

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Melbourne Water Corporation  
990 La Trarboe St  
Docklands VIC 3008

### Mosquito Monitoring 2024-2025 – Sampling Event 1 – August 2024

Dear Heremaia,

Please find below the mosquito monitoring results for Event 1 – August survey, carried out at Seaford Wetlands on the 28<sup>th</sup> and 29<sup>th</sup> of August 2024. Treatment is recommended at fifteen locations this month.

Adult trapping locations are detailed in Appendix A. A map detailing survey locations and areas that require treatment is attached to this document. A Google Earth .kml file detailing recommended treatment areas has also been provided prior to this report. Abundance tables extracted from “Mosquito Decision Support Tool – sampling and abundance guide” (GHD 2016) are provided in Appendix A and have been used to guide risk, based on results collected during this sampling event.

## 1. Recommendations

Mosquito treatment should occur in all shaded areas labelled as ‘August polygons’ on the attached map. Centroid coordinates have been provided in Table 1.

Table 1 Centroid coordinate or areas requiring treatment (GDA94/MGA zone 55)

Latitude	Longitude
-38.087980°	145.1440659°
-38.089595°	145.1439180°
-38.093800°	145.1424440°
-38.096116°	145.1416233°
-38.096882°	145.1409002°
-38.098061°	145.1401135°
-38.089908°	145.1404614°
-38.090368°	145.1362382°
-38.089096°	145.1395002°
-38.088870°	145.1409390°
-38.103855°	145.1337934°
-38.104661°	145.1370827°
-38.105140°	145.1380919°
-38.104536°	145.1385261°

Latitude	Longitude
-38.104022°	145.1384432°

Recent rain has produced shallow pools around the edges of the wetlands. This has created suitable habitat for mosquito larvae. Many of the larvae observed were immature. It is recommended that Melbourne Water treat these areas soon before the larvae develop.

## 2. Key findings

The August monitoring event has been carried out in accordance with the Melbourne Water Mosquito Management Plan<sup>1</sup>. This monitoring event allowed for a survey across the entire Seaford Wetlands. The survey focussed on areas where mosquito 'hot spots' have been detected in the past and on areas close to houses.

The intent of the survey was to identify sites with highly abundant larval populations and plan pre-emptive treatment before the seasonal increases in temperature trigger adult emergence.

### 2.1 Larval survey

A total of 78 locations were surveyed around the wetland. Over half the sites had some mosquito larvae present and very high numbers (over 50 larvae) were recorded at 19 sites (Table 2). Due to the nature of the sampling event, only a sub-sample of mosquito larvae found were collected and identified in the laboratory. The majority of mosquito larvae identified in the laboratory were identified as *Aedes camptorhynchus* – an aggressive biter and a vector for disease. Fifteen treatment areas have been identified with moderate to extreme abundances of mosquitoes (Table 1). These treatment areas cover all 19 sites where very high numbers of larvae were noted.

### 2.2 Adult survey

A moderate number of adult mosquitoes were collected in the McKenzie Street trap, with 64 specimens collected. Only one adult was caught in the Old Birdhide trap and no adults were collected in the Seaford North Primary School trap (Table 3). The low number of adults collected, especially in the Old Birdhide and Seaford North Primary School traps is likely due to strong winds on the night of 28 August 2024. However, the low numbers may also be due to larvae having not fully developed this early in the season. Only two species were caught across the traps, *Aedes alboannulatus* and *Aedes camptorhynchus*, both species known to act as vectors for disease.

Summary results of mosquito sampling from Event 1 are present in Table 4

<sup>1</sup> Mosquito Management Plan. (2017) prepared by GHD December 2017

### 3. Brief risk factors associated with the mosquito species caught

*Aedes alboannulatus* – Described as a vicious nuisance-biting pest, bites during the day and dusk. Potential vector for Ross River Virus and Barmah Forest Virus.

*Aedes camptorhynchus* – An aggressive biter throughout the day and evening. A major vector for Ross River Virus and a vector for Barmah Forest Virus and Murray Valley Encephalitis Virus. It is known as the ‘Southern Saltmarsh Mosquito’ due to its habitat preferences. However, it is able to disperse many kilometres from its larval habitats.

*Culex australicus* – Does not feed on humans, prefers rabbits and birds.

*Culex globocoxitus* – Does not preferentially bite humans. A potential vector for Murray Valley Encephalitis Virus.

*Culex molestus* – Preferentially bites humans and considered a domestic pest. A potential vector for Murray Valley Encephalitis Virus.

*Culex quinquefasciatus* - Preferentially bites humans and considered a major nuisance pest. A potential vector for Murray Valley Encephalitis Virus, Kunjin Virus, Ross River Virus and Barmah Forest Virus.

### 4. Results

Table 2 Larvae and pupae mosquito species and abundances for each dipping location – August Event

Site	Species	Abundance	Comments
1		None	Drain on edge of wetland
2		None	Dry
3		None	Dry
4		None	Dry
5		55 larvae, 10 pupae	Larvae are mature
6		2 larvae	Recommend checking this site next survey
7		20 larvae	Recommend checking this site next survey
8		None	Dry
9		4 larvae, 4 pupae	Aedes species
10		6 pupae	Predators observed
11	Culicidae (Pupa)	32	Shallow puddle
	<i>Aedes camptorhynchus</i>	63	
	<i>Aedes</i> sp. (Immature)	1	
	<i>Culex</i> sp. (Immature)	5	
12		None	Dry
13		None	Dry
14		1 larva	Larva found on edge. Larvae mature.
15	Culicidae (Pupa)	26	Puddles near large pool
	<i>Aedes camptorhynchus</i>	103	
	<i>Culex</i> sp. (Immature)	1	

Site	Species	Abundance	Comments
16		~50 larvae	In wheel ruts and depressions
17		~500 larvae	
18		~80 larvae	High numbers in wheel ruts
19		~20 larvae, 80 pupae	
20		~75 larvae, 25 pupae	
21		10 larvae	
22		12 larvae	
23		~300 larvae, 20 pupae	High numbers in wheel ruts
24		11 larvae	
25		~300 larvae	Shallows near large pools
26		~50 larvae	
27		None	
28	Culicidae (Pupa)	6	
	<i>Aedes camptorhynchus</i>	136	
29		None	
30		None	Dry
31		None	
32		None	Seaford Swamp Drain
33		None	Channel in centre of wetland
34		None	
35		~300 larvae, 60 pupae	In deeper pools
36		~300 larvae	
37		None	Predators seen
38		None	
39		None	
40		4 larvae	
41		None	
42		~70 larvae	
43		~80 larvae	
44		1 larva	Predators observed
45		2 larvae	
46		None	
47		~50 larvae	
48		None	Dry
49		~60 larvae	
50		~50 larvae, 50 pupae	
51		~70 larvae	
52		~100 larvae	
53	Culicidae (Pupa)	45	
	<i>Culex</i> sp. (Immature)	21	

Site	Species	Abundance	Comments
	<i>Culex australicus</i> group <sup>1</sup>	2	
	<i>Aedes camptorhynchus</i>	39	
54		None	
55		None	Dry
56		17 larvae, 1 pupa	
57		3 larvae	
58		1 larva	
59		None	
60		3 larvae	
61		None	
62		None	
63	<i>Aedes alboannulatus</i>	4	
	<i>Aedes camptorhynchus</i>	10	
	<i>Aedes</i> sp. (Immature)	28	
	Culicidae (Pupa)	1	
64		None	
65		None	Pool in southwest corner of wetlands
66		None	Pool in southwest corner of wetlands
67		1 larva	
68		~10 larvae, 10 pupae	
69		26 larvae	
70		3 larvae, 1 pupa	
71		None	Drain entrance near Austin Rd
72	Culicidae (Pupa)	19	
	<i>Aedes camptorhynchus</i>	178	
73		~40 larvae, 10 pupae	
74		~70 larvae	
75		76 larvae	
76		~10 larvae	
77		~10 larvae	
78		None	Predators seen and heard

<sup>1</sup> *Culex australicus* group includes *Culex australicus*, *Culex globocoxitus*, *Culex molestus* and *Culex quinquefasciatus* species which are difficult to distinguish based on morphological characteristics

Table 3 Adult mosquito species and abundances for each trap, August – Event 1

Species	Old Birdhide	Seaford North Primary School	McKenzie Street
<i>Aedes alboannulatus</i>			3
<i>Aedes camptorhynchus</i>	1		61
<b>Total Female Mosquitoes</b>	<b>1</b>	<b>0</b>	<b>64</b>

Table 4 Summary of mosquito results Seaford Wetland season 2024/25

Event	Date	Total Larvae	Total Pupae	Total Adults
August Event 1	28-29 August 2024	591 <sup>1</sup> , (3438 <sup>2</sup> )	129 <sup>1</sup> , (406 <sup>2</sup> )	65

<sup>1</sup> Laboratory identified. <sup>2</sup> Including field estimates.

Regards

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# Appendix A

## Methods and risk assessment

Three adult traps were placed around the wetland (Table 5). One was set near Seaford Primary School at McKenzie Street, one near Seaford North Primary School and one in the heart of the wetland amongst suitable mosquito larvae habitat at the “Old Birdhide”. Adult counts and identification to species were preliminarily performed by GHD, with confirmation of species identifications and results of virus testing to be provided by the AgriBio, Centre for AgriBioscience, Department of Jobs, Skills, Industry and Regions (DJSIR) in the following weeks. A selection of areas at Seaford Wetlands were surveyed for larvae Water Photographs were also taken in these areas. All larvae identifications are performed by GHD.

**Table 5** *Adult mosquito trap coordinates*

Trap Locations	Latitude	Longitude
Seaford North Primary School	-38.090090°	145.138400°
McKenzie Street, Seaford	-38.104570°	145.133590°
Old Bird hide, Seaford Wetlands	-38.090354°	145.141532°

**Table 6** *Mosquito adult abundance rating per sampling point*

Adult Abundance Rating	Number caught per trap
Very Low	None
Low	<50
Moderate	50-100
High	101-1,000
Very High	1,000-10,000
Extreme	>10,000

**Table 7** *Mosquito larvae abundance rating per sampling point*

Larvae Abundance Rating	Number caught per location (10 dips)
Very Low	None
Low	1-5
Moderate	6-10
High	11-50
Very High	51-100
Extreme	>100