

MF236 Okehampton

Seagrass surveys September 2017 (VERSION 1.0)

Summary Report to:
Tassal Limited
December 2017



AQUENAL

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Operational Summary

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Fieldwork: Filming for this assessment was carried out by Tassal using a Seabotix LBV150SE Remote Operated Vehicle (ROV).

Video analysis: Aquenal Pty Ltd

Field conditions

Weather	Date: 20 September 2017
Wind:	W 5-10 knots
Sky:	Patchy
Rain:	Nil
Sea:	Calm
Current:	Moderate

1 Introduction and methods

In accordance with Schedule 3 BEMP Okehampton Bay, seagrass monitoring was undertaken at Okehampton Bay during September 2017. Surveys were undertaken at the locations shown in Figure 1 (see Appendix 1 for coordinates). Surveys were conducted using a Remote Observation Vehicle (ROV).



Figure 1 Location of spring 2017 seagrass survey sites

Each dive consisted of at least 3 minutes of video footage, with the ROV driven along a transect aligned by a compass bearing. In the laboratory, video footage was reviewed for the purpose of estimating the coverage and health of seagrass and macroalgal communities.

Seagrass and epiphyte coverage were assessed in 30 second blocks, with 3 minutes assessed for each site. Seagrass and macroalgal coverage was estimated on a percentage cover basis, while epiphytes were assessed using a qualitative scale from 1-5. Table 1 below describes the epiphyte coverage scale. Note that where *Caulerpa* or other macroalgae were present, the epiphyte assessment was made across all vegetation present.

Table 1 Epiphyte coverage qualitative scale

Epiphyte scale	Description
1	Very low, virtually clean plants
2	Low; minimal epiphytic growth
3	Medium; obvious epiphytic growth
4	High; most plants covered
5	Very high, plants completely covered

2 Results and interpretation

A summary of seagrass observations are provided in Table 2 below.

Table 2 Summary of observations made during assessments of seagrass sites

Dive	Dive time	Seagrass coverage (%)	<i>Caulerpa</i> coverage (%)	Epiphyte score	Comments
Site 1 Eastern Site (7 m depth) ROV start at 1:15	0-30 sec	10	80	3	Red epiphytes present
	30-60 sec	10	80	3	
	60-90 sec	20	70	3	
	90-120 sec	10	80	3	
	120-150 sec	20	70	3	
	150-180 sec	10	80	3	
Site 2 Western Site (6.5 m depth) ROV start at 2:00 (gap between 3:00-4:00)	0-30 sec	50		3	Red epiphytes and red foliose algae present. Some <i>Cystophora</i> . Large bare sand patches
	30-60 sec	50		3-4	
	60-90 sec	30		3	
	90-120 sec	70		3	
	120-150 sec	80		3	
	150-180 sec	70		3-4	

At Site 1, seagrass (*Zostera tasmanica*) cover was relatively low (10-20%). The dominant vegetation at this site was the green macroalga *Caulerpa scalpelliformis*. *Caulerpa scalpelliformis* is a macroalgal species that has a similar morphology and growth habit to seagrass. It should be noted that in some instances it was difficult to distinguish between *Caulerpa* and seagrass plants based on the ROV footage, given their similar colour and morphology.

At Site 2, overall vegetation coverage was more patchy compared to Site 1. Seagrass cover was much higher compared to the eastern site, with little or no *Caulerpa* present. Some red macroalgae was observed, although based on the video footage it could not be determined whether these were attached or drift plants.

Epiphytes tended to be mainly filamentous red macroalgae and were present at both sites. Overall, epiphyte coverage tended to be evident for most of the survey dive at both sites. This resulted in a score of '3' for most sections of video analysed. Epiphyte coverage was quite patchy, with occasional very high cover, particularly at Site 2. Occasional plants of the large brown macroalgae *Cystophora* spp. were also observed at Site 2.

Note that future surveys will involve deployment of a transect line (50 m length), with the start and end position of the transect recorded by GPS. This should improve repeatability of the transect method. Future surveys are also planned to incorporate distant control locations. Chinamans Bay and Shelley Beach have been identified as potential areas for control sites (Figure 2). The above changes were suggested following Tassal consultation with IMAS marine ecologists.



Figure 2 Indicative location of potential far-field control locations for future seagrass surveys.

Appendix 1 Survey coordinates

Site	Details	Easting	Northing
Site 1	Okehampton Bay - eastern site	580749	5292126
Site 2	Okehampton Bay - western site	579613	5291683