MF109 Great Taylors Bay (Butlers)

Environmental Antibiotic Residue Monitoring

October 2022 OTC Treatment

Final Report

September 2026

Report to:
Tassal Operations Pty Ltd

Prepared by:
AQUENAL PTY LTD

AQUENAL

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Operational Summary

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Seabed and wild fish sampling was undertaken by Aquenal. Positioning for seabed sampling was undertaken using a Garmin GPS plotter with 19x NMEA 2000 position antenna. This system provides real-time GPS positions accurate to ~2 m. Positions were referenced to a State Permanent Mark (SPM) prior to commencement of fieldwork.

1 Introduction and Scope

An Environmental Antibiotic Residue Monitoring survey was undertaken in the vicinity of MF109 Great Taylors Bay (hereafter Butlers) marine farming lease (Environmental Licence 9870/5), located within the D'Entrecasteaux Channel and Huon River Marine Farming Development Plan area. Sampling methodologies and analyses were in accordance with the monitoring requirements stipulated by the Tasmanian Environment Protection Authority (EPA) in the *Antibiotic Residue Monitoring Schedule*, *Butlers MF109 Environmental Licence 9870/2*.

The survey design provided by the EPA included sampling of sediment and wild fish for the purpose monitoring residue of the antibiotic Oxytetracycline (OTC), based on the treatment carried out between the 6th and 15th of October 2022 (see Appendix 1 for treatment details). The initial monitoring survey design included:

- four sediment sampling events, and;
- two wild fish sampling events.

Table 1 provides an overview of the methodologies, survey frequency and proposed timing for each component. The first five sampling rounds were in accordance with the EPA *Antibiotic Residue Monitoring Schedule* and were carried out between October 2022 and January 2023. A sixth round of sampling (sediment only) was requested by EPA and selected sediment sites (i.e. PB5, 35S, 100S) were subsequently sampled in February 2023 (Round 6). Further follow up sediment monitoring was requested by EPA for selected pen bay sites following ongoing review of results from each additional sampling event, which was repeated until all samples returned results below a pre-defined threshold determined by the EPA (0.1 mg/kg; EPA letter to Tassal, 25 August 2023). These thirteen additional sampling events (Rounds 7-19) were undertaken between March 2023 and June 2026.

This report provides a summary of the sediment and wild fish sampling activities undertaken across the 19 sampling rounds.

Table 1: Overview of OTC residue monitoring program for MF109 Butlers, according to the *Antibiotic Residue Monitoring Schedule, Butlers MF109*. Note that there were minor differences between scheduled and actual sample timing, due to practical scheduling and weather-related constraints (see Appendix 2).

Survey Component	No. Surveys	Scheduled Timing	Survey Round
Sediment	4	1, 14, 28 and 56 days following completion of OTC treatment	1, 2, 3 & 4
Wild fish	2	1 and 76 days following completion of OTC treatment	1 & 5
Additional sediment sampling	14	As requested by EPA – selected sites	6-19

2 Methods

2.1 Sediment Sampling

2.1.1 Survey sites

The initial sediment survey design for residue monitoring included one pen bay site (PB5), six 'outside of lease' (transect) sites, and one ambient (reference) site (Figure 1). Each site was sampled during Rounds 1-4 of the survey, with a subset of sites sampled during Round 6 (one pen bay site and two transect sites). Pen bay site PB5 was sampled throughout the monitoring period, including the further follow up sampling requested by the EPA in Rounds 7-19. Additional pen bay sites were sampled in Round 12 (PB1) and Rounds 12-18 (PB15; Figure 1) as requested by the EPA. Sampling at pen bay sites was conducted as close to the pen edge as practical by securing the vessel to designated berthing locations on the pens. The pen grid incorporating these three positions was relocated after Round 3 and no pens were present at the sampling location from Round 4 onwards. The positions were subsequently sampled as close as practical to the original sampling location (or the previous pen bay location for positions PB1 and PB15) during Rounds 4-19.

'Outside of lease' sites were sampled in Rounds 1-6 along three transects, positioned at right angles to the marine farming lease boundary. Along each transect, sites were located at a distance of 35 m and 100 m from the lease boundary. The ambient site was located east of Partridge Island (Figure 1).

Sites were specified by the EPA and sampling coordinates are provided in Appendix 3.

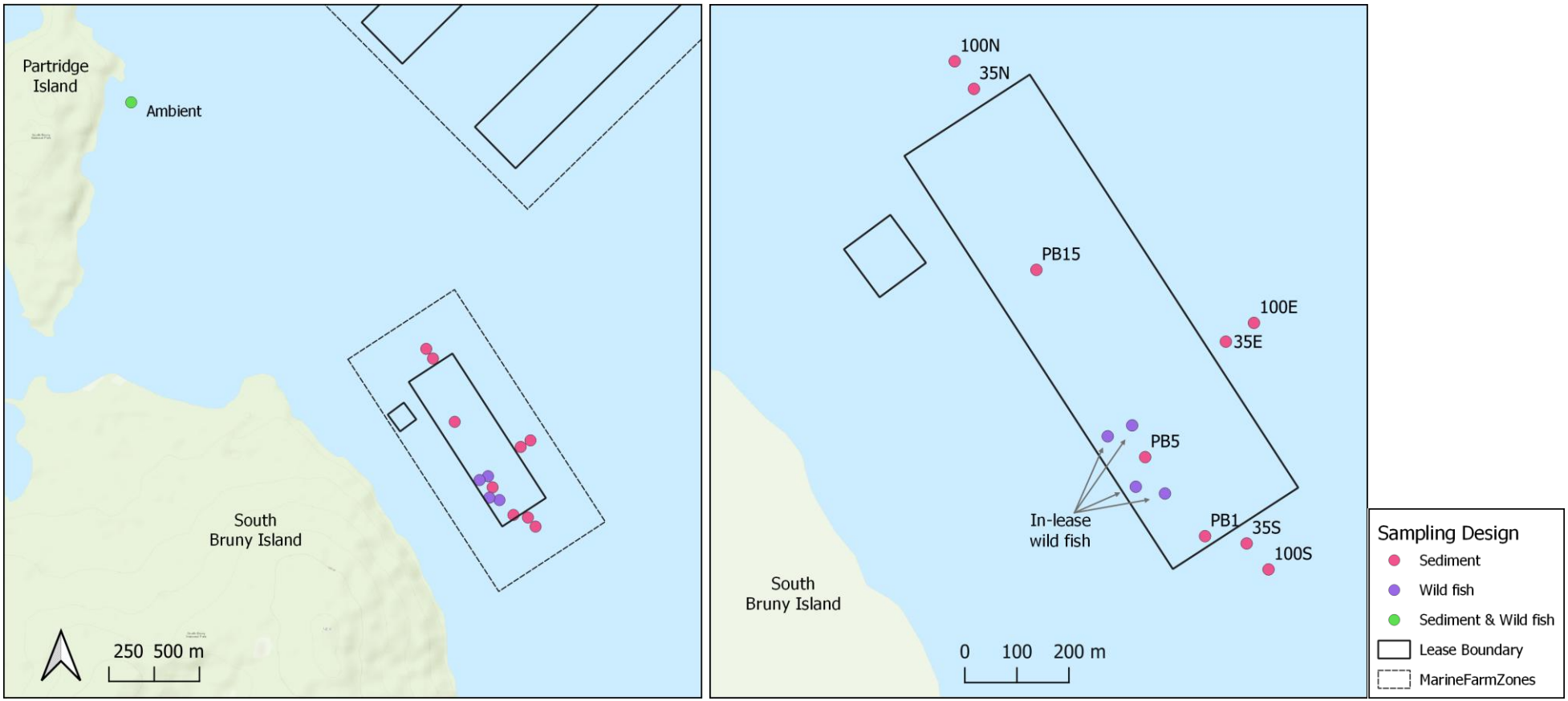


Figure 1: Location and survey maps – MF109 Butlers showing overview and location of sediment and wild fish sampling locations.

2.1.2 Sample collection and core processing

At each sample site, a Craib corer was used to collect sediment cores. Core samples (75 mm minimum length) were collected in clean Perspex cores (Figure 2). The Craib corer was thoroughly cleaned and rinsed with seawater between each site. Samples were taken from the sites furthermost from the lease area first to minimise the risk of sample contamination (i.e. ambient site, 100 m, 35 m and then pen bay sites).

Triplicate cores were taken at each site. In the Aquenal laboratory, samples were split into surface (top 25 mm) and bottom (bottom 50 mm) sections and composited according to the EPA schedule. For the duplicate composited samples, the top 25 mm from two replicate cores were combined into one jar. Similarly, the bottom 50 mm from the same two cores were combined into a single jar. The third replicate core sample was separated into the 25 mm and 50 mm sections, with samples retained in frozen storage in the event that further analysis was required. Cores sampled at sites furthermost from the lease area were processed first to prevent sample contamination.

(a) (b)

Figure 2: Field photos showing: (a) Craib corer, and (b) sediment sample collected in Perspex core.

2.1.3 Sample analysis

Following processing of cores in the Aquenal laboratory, samples were frozen before delivery to the Analytical Services Tasmania (AST) laboratory for analysis. Samples were analysed for Oxytetracycline (OTC) in sediment, and the limit of reporting (LOR) was 0.01 mg/kg. The LOR is the lowest concentration of an analyte that the laboratory can reliably and consistently measure. AST analysed sediments on a dry mass basis and OTC results were reported as mg/kgDMB. Analysis of surface core sections was conducted for all sites in survey Rounds 1-4 and analysis of bottom core sections was initially conducted for the pen bay site only (with the exception of Round 1). Following review of Round 1 results, the EPA requested analysis of selected archived samples. This included the replicate core (surface and bottom section samples) of pen bay site PB5, along with frozen archived replicate surface samples and previously un-analysed bottom section samples of selected transect sites from Round 1 (see Table 2). Pen bay site PB5 and a subset of transect sites were sampled and analysed in Round 6, and in the additional Rounds 7-19, sampling and analysis was restricted to pen bay sites (PB5, PB1, PB15).

2.2 Wild Fish Sampling

2.2.1 Survey sites

The wild fish survey design for residue monitoring included ambient and in-lease locations (Figure 1). For the in-lease sampling, wild fish were collected from locations within the central and southern part of the MF109 Butlers lease. Wild fish were also collected at the ambient site location (east of Partridge Island; Figure 1). Fish were sampled within a radius of ~50 m from the recorded GPS location.

Sampling coordinates are provided in Appendix 3.

2.2.2 Sample collection and processing

Wild fish sampling was undertaken in Round 1 and Round 5 of the survey (see Table 1) and conducted by hook and line fishing under an *Environmental Monitoring Permit (Number 22129)* issued by the Aquaculture Branch of the Department of Natural Resources and Environment Tasmania. The *Antibiotic Residue Monitoring Schedule* required 12 fish to be collected at both the in-lease and ambient locations across two sampling events (48 fish total).

In Round 1 of the survey, 12 fish were collected from the ambient location. For the in-lease location, only 10 fish were collected, despite considerable fishing effort (6 hours fishing spread over two days; 17-18/10/2022). The slightly lower number of fish collected at the in-lease location was due to apparent low fish abundance within the lease target area at the time of sampling. In Round 5 of the survey, 12 fish were collected at both the in-lease and ambient locations. The fish samples in both rounds were comprised entirely of the benthic species *Platycephalus bassensis* (sand flathead; see Appendix 5).

At each location (in-lease and ambient), the fish were divided into 4 samples for analysis, with each pooled sample comprised of 3 individuals (e.g. Figure 3a); except for pooled sample 8 (in-lease location) in the Round 1 survey which had only one individual. For processing, the tail of each fish was cut off posterior to the anus and bagged prior to investigation of gut contents (Figure 3b). Tissue samples (tails) were retained in separate bags for each pooled sample, chilled immediately and then frozen.

Sampling was undertaken at the ambient site first, followed by the in-lease location. Details of each fish specimen were recorded in the field. All sampling gear and preparation equipment used in the field was thoroughly cleaned during sampling and processing. Photos of fish specimens prepared for analysis are presented in Appendix 4 and field data for wild fish sampling is included in Appendix 5.

Note that the EPA schedule specified the requirement for feed pellets to be present in analysed samples from the in-lease location. This requirement was not always practical as the majority of fish

in Round 1 and all fish in Round 5 of the survey did not have evidence of pellets in their stomach contents, with naturally occurring dietary items prevalent (Figure 3c-d). In Round 1, evidence of pellets in wild fish samples was observed in 2 of the 10 in-lease specimens (Appendix 5).

2.2.3 Sample analysis

Following processing of fish samples in the field, samples were held in frozen storage at the Aquenal laboratory then delivered to the Analytical Services Tasmania (AST) laboratory for analysis. Samples were analysed for Oxytetracycline (OTC) in fish tissue, and the limit of reporting (LOR) was 0.01 mg/kg. The LOR is the lowest concentration of an analyte that the laboratory can reliably and consistently measure. Note that flesh sample analysis by AST was on an 'as received' or 'wet' basis and OTC results were reported as mg/kgWMB (wet matter basis).

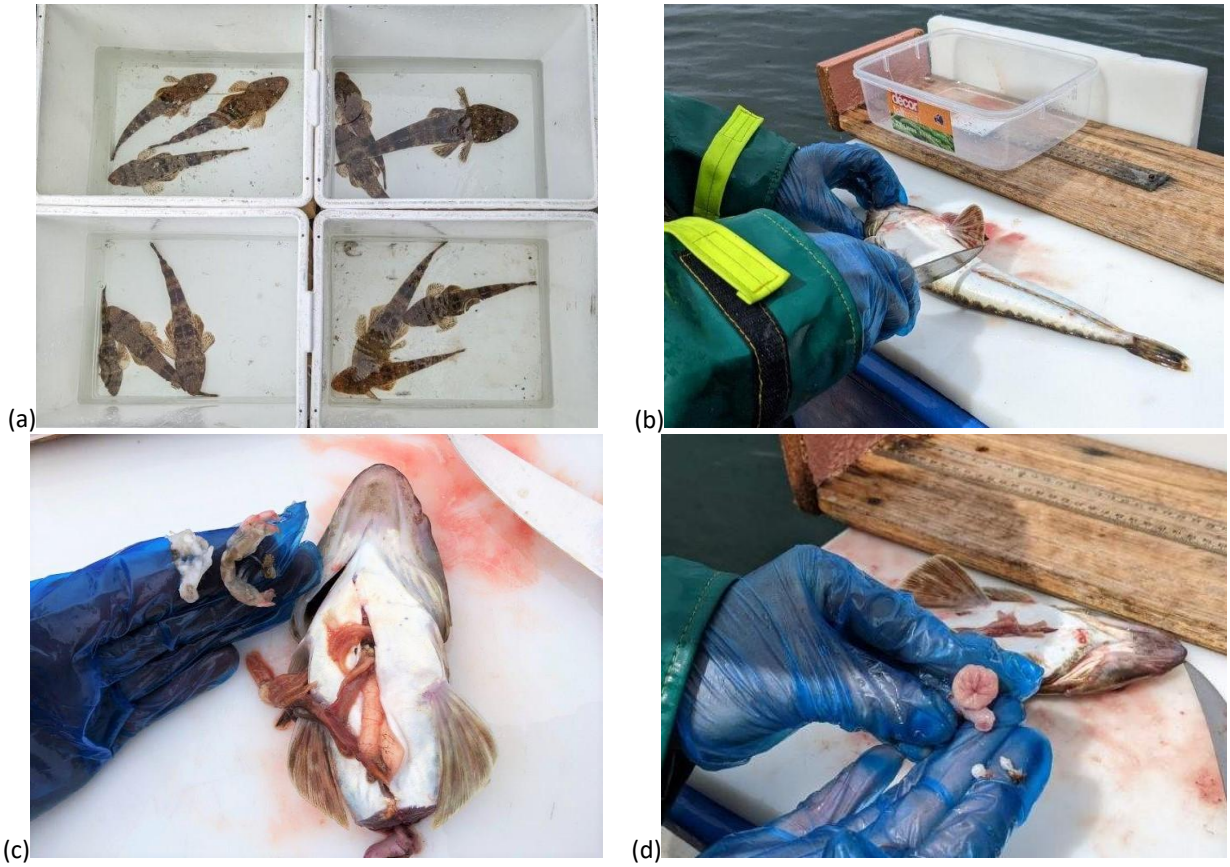


Figure 3: Wild fish field sampling photos showing: (a) four pooled samples of sand flathead (*Platycephalus bassensis*), (b) processing of a specimen, and (c-d) an example of gut contents inspection.

3 Results

3.1 Sediment Sampling

3.1.1 Pen bay sites

Results from the eighteen sediment sampling events (Rounds 1-4, and Rounds 6-19) are summarised in Table 2. OTC concentrations were highest at the pen bay site (PB5), particularly for surface samples in Round 1 (75 mg/kg; Table 2). The archived replicate samples from PB5 during Round 1 were also analysed to further examine the OTC concentrations and results showed a similarly high concentration of 47 mg/kg in the surface sample (Table 2). It is notable that occasional feed pellets were evident in the surface sediment of the triplicate pen bay cores in the first two sampling events, which may explain the relatively high OTC levels recorded in initial surveys.

Surface sample OTC concentration for PB5 declined from 75 mg/kg in Round 1 to 1.1 mg/kg in Round 6 (Table 2; Figure 4). There was a slight increase in OTC concentrations observed between Round 6 and Round 7 (Table 2; Figure 4). Between Rounds 7 and 11, surface sample OTC concentrations varied between 7.0 and 4.4 mg/kg (Table 2).

Additonal sampling was undertaken at PB1, PB5 and PB15 from survey Rounds 12 onwards. OTC concentration at PB1 was very low in the Round 12 survey (i.e. <0.1 mg/kg; Table 2), with no further sampling undertaken at this site. OTC concentrations in surface samples at PB5 and PB15 declined to <0.5 mg/kg from survey Round 12 onwards, but persisted at low levels up to and including the Round 17 survey at both sites (Table 2; Figure 4). In the final sampling rounds, surface sample OTC reached very low concentrations (<0.1 mg/kg) in Round 18 at PB15 (0.09 mg/kg), and in Round 19 at PB5 (0.08 mg/kg; Table 2).

Variation in OTC concentration between surveys is likely reflective of small-scale sampling variability and potential patchy distribution of OTC residue in surface sediments beneath medicated pen bays. It should be noted that the location of the pen bay sample site PB5 varied by +/-10 m across the survey period. This was due to movement of the pen as a result of wind and tide (in Rounds 1-3) and the presence of underwater infrastructure in the vicinity of PB5 from Round 4 onwards following relocation of the grid.

OTC concentration was lower in the bottom section of core samples compared to the surface section for the majority of pen bay samples. The bottom OTC concentration trends at pen bay site PB5 were generally consistent with patterns observed in surface sediment samples (Table 2).

3.1.2 Transect and ambient sites

Throughout Rounds 1 to 6, surface sample OTC concentrations at the transect (outside of lease) sites were very low. Values ranged between 0.01 and 0.10 mg/kg at the three 35 m sites, and between 0.01 and 0.06 mg/kg at the three 100 m sites (Table 2). All transect sites recorded very low OTC concentrations in the last sampling event involving all sites (Round 4: between 0.01 and 0.06 mg/kg; Table 2). In accordance with the schedule (and as approved by EPA), sampling at transect sites was not required after the Round 6 survey. It is notable that sampling of the transect sites continued as part of a monitoring program for a separate OTC treatment carried out in February 2023, with OTC levels declining further in subsequent surveys at these sites (Aquenal 2023). OTC concentrations were equivalent or lower than the reporting limit for transect site samples collected in the March - May 2023 period (Aquenal 2023).

There was no evidence of OTC residue in sediments sampled at the ambient site, with the sediment surface sample OTC concentrations below the limit of reporting (i.e. <0.01 mg/kg) in all applicable survey rounds (1-4; Table 2).

3.1.3 Summary

Residue monitoring showed that OTC concentrations in sediments were highest at pen bay site PB5, particularly in surface samples from Round 1. While there was an initial sharp decline following the Round 1 survey, very low to low OTC concentrations persisted in sediment samples at pen bay sites PB5 and PB15 until the final sampling events (Round 18 and Round 19). OTC concentrations were substantially lower at the transect sites (35 m and 100 m outside the lease edge) and remained very low throughout the survey, ranging between 0.01 mg/kg and 0.10 mg/kg (Table 2).

Persistence of OTC appears localised to the pen bay sites, with no evidence of OTC persistence beyond the lease area at the transect sites. Variation in low level OTC concentrations observed during survey Rounds 12-18 at the pen bay sites is most likely reflective of sampling variability and potential patchy OTC concentrations beneath medicated pen bays.

Table 2: Oxytetracycline (OTC) concentration (mg/kg) in sediment samples collected at MF109 (Butlers) at the surface (S) and at depth (bottom, B) during eighteen sediment sampling events (Rounds 1-4 and 6-19). Antibiotic treatment was carried out from 6th to the 15th October 2022. Blue shaded cells indicate sites where analysis and/or sampling was not required. S = surface sample, B = bottom sample. Note: OTC in sediment is reported by AST as mg/kgDMB (dry matter basis).

Survey Round	Sample Depth	OTC (mg/kg)										Date Sampled	Days since treatment complete
		PB5	PB15	PB1	35N	35E	35S	100N	100E	100S	Ambient		
1	S	75			0.05	0.02	0.10	0.04	0.01	0.05	<0.01	17/10/22	2
	B	0.71											
1 additional analysis	S	47				0.06	0.07			0.06		17/10/22	2
	B	0.6				<0.01	0.03						
2	S	5.1			0.02	0.02	0.06	0.01	0.01	0.06	<0.01	28/10/22	13
	B	0.18											
3	S	3.0			0.02	0.06	0.10	0.01	0.01	0.04	<0.01	11/11/22	27
	B	0.15											
4	S	1.7			0.01	0.01	0.05	0.02	0.03	0.06	<0.01	10/12/22	56
	B	0.11											
6	S	1.1					0.04			0.01		20/02/23	128
	B	0.22											
7	S	7.0										9/03/23	145
	B	1.1											
8	S	6.3										22/03/23	158
	B	1.5											
9	S	5.8										4/04/23	171
	B	0.72											
10	S	4.1										3/05/23	200
	B	0.64											
11	S	4.4										12/05/23	209
	B	1.7											
12	S	0.18	0.38	0.06								19/07/23	277
	B	0.04	0.11	0.04									
13	S	0.16	0.13									14/09/23	334
	B	0.03	0.12										
14	S	0.34	0.16									20/11/23	401
	B		0.11										
15	S	0.35	0.18									25/01/24	467
	B		0.25										
16	S	0.15	0.16									12/09/24	698
	B		0.09										
17	S	0.43	0.30									14/01/25	822
	B		0.32										
18	S	0.14	0.09									23/09/25	1074
	B		0.08										
19	S	0.08										17/06/26	1341
	B												

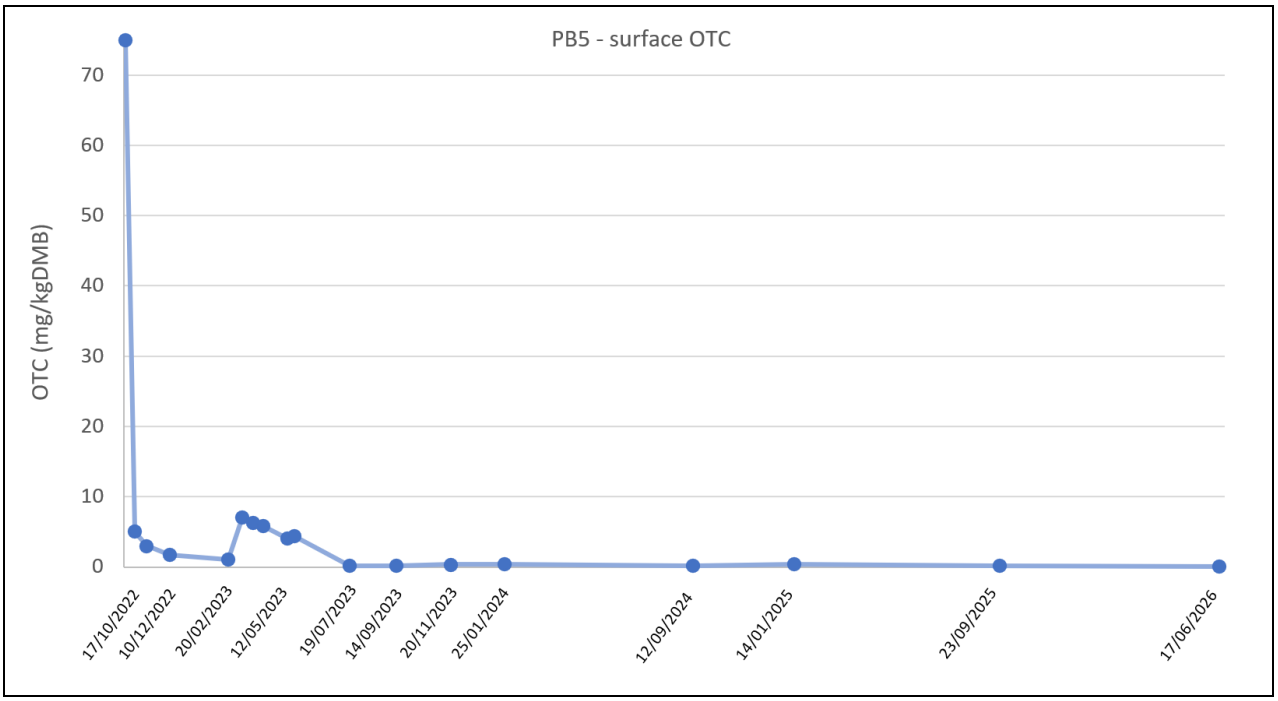


Figure 4: Time series illustrating OTC concentration (mg/kg) at PB5 in surface samples, between Rounds 1 and 19, October 2022 - June 2026.

3.2 Wild Fish Sampling

Results from wild fish sampling as part of the OTC residue survey are summarised in Table 3. In Round 1, OTC concentrations in wild fish were below the AST limit of reporting (LOR; i.e <0.01 mg/kg) for all ambient site samples (pooled samples 1-4; Table 3). Of the four in-lease wild fish samples, one sample (pooled sample 7) returned an OTC concentration equal to the LOR (0.01 mg/kg; Table 3). This sample was comprised of the benthic species *Platycephalus bassensis* (sand flathead), and included one specimen with feed pellets present in the gut contents (see Appendix 5).

In Round 5 of the residue survey (the second wild fish sampling event) OTC concentration was below the LOR (<0.01 mg/kg) for all samples collected, at both ambient and in-lease locations (pooled samples 9-16; Table 3).

At the completion of wild fish sampling, there was no evidence of environmental accumulation of OTC residue in fish tissue based on the LOR used in this survey (0.01 mg/kg). The result recorded in pooled sample 7 from Round 1 was twenty times below the maximum residue limit of OTC for fish, as specified in the Australia New Zealand Food Standard Code - Schedule 20[1], which sets a permitted residue of OTC at 0.2 mg/kg. It should be noted that the residue limits specified in the Australian New Zealand Food Standard Code are applicable to food produced, processed, sold or exported from Australia and New Zealand and are not directly applicable to wild fish.

Wild fish specimen descriptions and images are provided in Appendices 4 and 5.

[1] Australia New Zealand Food Standards Code – Schedule 20 – Maximum residue limits

Table 3: Oxytetracycline (OTC) concentration (mg/kg) in wild fish samples collected at MF109 (Butlers) during Round 1 and Round 5 of sampling. Antibiotic treatment was carried out from the 6th to the 15th of October 2022. OTC in fish tissue is reported by AST as mg/kgWMB (wet matter basis).

Location	Round 1		Round 5	
	Pooled sample #	OTC (mg/kg)	Pooled sample #	OTC (mg/kg)
Ambient (Partridge Island)	1	<0.01	9	<0.01
	2	<0.01	10	<0.01
	3	<0.01	11	<0.01
	4	<0.01	12	<0.01
In-Lease	5	<0.01	13	<0.01
	6	<0.01	14	<0.01
	7	0.01	15	<0.01
	8	<0.01	16	<0.01
OTC treatment details				
Date sampled	17-18/10/2022		4/01/2023	
Days since treatment complete	2-3		81	

Reference

Aquenal (2023) MF109 Butlers OTC Residue Monitoring (February 2023 medication) FINAL REPORT Survey Rounds 1-5 June 2023 Report to: Tassal Group Limited, 22 pp.

Appendices

Appendix 1: Antibiotic oxytetracycline (OTC) treatment details for *MF109 Butlers* lease. Treatment was administered by feed.

Treatment	Type	Days	Dates prescribed	Active ingredient (kg)
Antibiotic (22-03-Tx)	Oxytetracycline	10	06/10/2022 – 15/10/2022	465

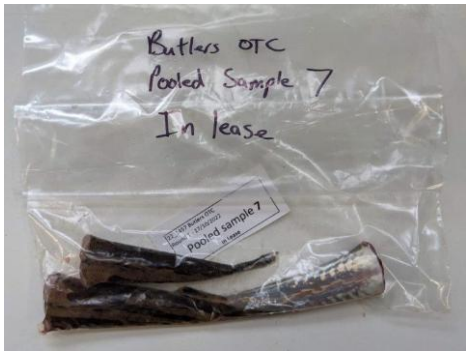
Appendix 2: Dates and weather conditions of field surveys for the MF109 Butlers residue monitoring survey.

Survey Round	Date	Wind	Sky	Rain	Sea
Round 1	17/10/2022	SSW 10 kts; SSE 10-15 kts	Cloudy	Light rain	0 m
	18/10/2022	N 5-15 kts	Cloudy	Nil	0 m
Round 2	28/10/2022	SW 10 kts	Cloudy	Rain	0 m
Round 3	11/11/2022	E 5 kts	Cloudy	Light rain	0 m
Round 4	10/12/2022	N 0-5 kts; E 5 kts	Partly cloudy	Nil	0 m
Round 5	4/01/2023	SW 5 kts; SE 10-15 kts	Partly cloudy	Nil	0 m
Round 6	20/02/2023	S-SSE 10 kts	Cloudy	Light	0 m
Round 7	9/03/2023	NW 10 kts	Cloudy	Light rain	<0.5 m
Round 8	22/03/2023	E 0-5 kts	Partly cloudy	Nil	<0.5 m
Round 9	4/04/2023	NW 5-10 kts	Cloudy	Nil	<0.5 m
Round 10	3/05/2023	Light & variable	Cloudy	Light rain	Calm
Round 11	12/05/2023	W 10 kts	Cloudy	Light shower	<0.5 m
Round 12	19/07/2023	WSW 5-10kts	Cloudy	Nil	<0.5 m
Round 13	14/09/2023	W 5-10kts	Sunny	Nil	<0.5 m
Round 14	20/11/2023	E 10 kts	Cloudy	Nil	<0.5 m
Round 15	25/01/2024	NW 10 kts	Cloudy	Nil	<0.5 m
Round 16	12/09/2024	NW light	Overcast	Nil	<0.5 m
Round 17	14/01/2025	ESE 10-15	Sunny	Nil	<0.5 m
Round 18	23/09/2025	W 10-15 kts	Partly sunny	Nil	Choppy
Round 19	17/06/2026	Light & variable	Cloudy	Nil	<0.5 m

Appendix 3: Survey coordinates of the MF109 Butlers residue monitoring survey including sediment and wild fish sampling, based on the Mapping Grid of Australia Zone 55 (Datum GDA94). Coordinates are from the first instance a site was visited in the field by Aquenal.

Sampling Method	Category	Site	Easting	Northing	Depth (m)
Sediment	Pen Bay (in-lease)	PB5	510594	5192884	23.6
		PB1	510709	5192732	23.3
		PB15	510385	5193244	21.9
	Transect (outside lease)	35N	510265	5193592	22.3
		35E	510749	5193106	22.8
		35S	510789	5192718	21.3
		100N	510228	5193645	22.6
		100E	510803	5193142	21.9
		100S	510831	5192668	21.2
	Ambient (reference)	Ambient	508600	5195000	11.6
Wild fish	Ambient (reference)	Ambient	508600	5195000	11.6
	In-lease	In-lease (Round 1)	510569	5192945	23.9
		In-lease (Round 1)	510632	5192814	22.5
		In-lease (Round 1)	510522	5192924	24.3
		In-lease (Round 5)	510576	5192827	22.9

Appendix 4: Pooled samples of wild fish specimens prepared for analysis from ambient and in-lease sites for Round 1 of the residue monitoring survey.

Ambient site	
Pooled sample 1	Pooled sample 2
Pooled sample 3	Pooled sample 4
In-lease site	
Pooled sample 5	Pooled sample 6
	
Pooled sample 7	Pooled sample 8

Appendix 4 (continued): Pooled samples of wild fish specimens prepared for analysis from ambient and in-lease sites for Round 5 of the residue monitoring survey.

Ambient site	
Pooled sample 9	Pooled sample 10
Pooled sample 11	Pooled sample 12
In-lease site	
Pooled sample 13	Pooled sample 14
Pooled sample 15	Pooled sample 16

Appendix 5: Round 1 wild fish sampling field data. Table adapted from Annexure 3 of the *Antibiotic Residue Monitoring Schedule, Butlers MF109*.

Site Category	Sample date	Specimen #	Pooled sample #	Sample weight		Fish species	Fish length (mm)	Gut contents	
				whole	tail				
Ambient	17/10/2022	1	1	105	33	Sand flathead	250	Empty	
	17/10/2022	2	1	150	41	Sand flathead	285	Empty	
	17/10/2022	3	1	110	35	Sand flathead	260	1 x isopod (Cirolanidae)	
	17/10/2022	4	2	490	100	Sand flathead	355	Fish bones	
	17/10/2022	5	2	120	35	Sand flathead	255	1 x isopod (Cirolanidae)	
	17/10/2022	6	2	95	25	Sand flathead	235	Decomposed fish	
	17/10/2022	7	3	150	40	Sand flathead	290	1 x isopod (Cirolanidae), decomposed fish	
	17/10/2022	8	3	50	15	Sand flathead	200	10 x amphipods	
	17/10/2022	9	3	115	30	Sand flathead	260	2 x pebble crabs, decomposed fish	
	17/10/2022	10	4	90	20	Sand flathead	250	2 x amphipods, 1 x gastropod	Regurgitated fish (blenny)*
	17/10/2022	11	4	105	30	Sand flathead	250	Empty	
	17/10/2022	12	4	175	45	Sand flathead	300	Decomposed fish	
In-Lease	17/10/2022	13	5	140	35	Sand flathead	275	1 x crab, pellet	
	17/10/2022	14	5	85	25	Sand flathead	235	Decomposed fish	
	17/10/2022	15	5	75	25	Sand flathead	225	5 x amphipods	
	18/10/2022	16	6	70	20	Sand flathead	215	Decomposed fish, 1 x mysid, unknown brown substance	
	18/10/2022	17	6	125	33	Sand flathead	265	Empty	
	18/10/2022	18	6	56	16	Sand flathead	200	Empty	
	18/10/2022	19	7	100	28	Sand flathead	260	Pellets	
	18/10/2022	20	7	95	25	Sand flathead	235	Empty	
	18/10/2022	21	7	70	20	Sand flathead	215	Mussel	
	18/10/2022	22	8	106	28	Sand flathead	250	1 x decapod shrimp, 1 x amphipod, decomposed fish	
	NA	23	8	NA	NA	NA	NA	NA	
	NA	24	8	NA	NA	NA	NA	NA	

**Gut contents for this observation was observed in the bucket holding the pooled sample of 3 fish, hence the gut contents could not be allocated to a single fish.*

Appendix 5 (continued): Round 5 wild fish sampling field data. Table adapted from Annexure 3 of the *Antibiotic Residue Monitoring Schedule, Butlers MF109*.

Site / Category	Sample date	Specimen #	Pooled sample #	Sample weight		Fish species	Fish length (mm)	Gut contents	
				whole	tail				
Ambient	4/1/2023	25	9	95	24	Sand flathead	240	Empty	
	4/1/2023	26	9	57	17	Sand flathead	205	1 x shrimp, 1 x amphipod	
	4/1/2023	27	9	95	25	Sand flathead	240	3 x shrimp	
	4/1/2023	28	10	84	24	Sand flathead	235	3 x shrimp, 1 x decomposed fish	
	4/1/2023	29	10	66	19	Sand flathead	200	Empty	
	4/1/2023	30	10	110	31	Sand flathead	200	Empty	
	4/1/2023	31	11	62	18	Sand flathead	215	12 x amphipods	
	4/1/2023	32	11	65	18	Sand flathead	215	1 x decomposed fish, 6 x amphipods	
	4/1/2023	33	11	71	20	Sand flathead	220	1 x shrimp	
	4/1/2023	34	12	123	35	Sand flathead	265	Empty	
	4/1/2023	35	12	175	36	Sand flathead	270	1 x pebble crab	
	4/1/2023	36	12	310	87	Sand flathead	350	1 x decomposed fish	
In-Lease	4/1/2023	37	13	125	26	Sand flathead	255	10 x shrimp, 1 x squat lobster	
	4/1/2023	38	13	103	19	Sand flathead	250	1 x shrimp	
	4/1/2023	39	13	200	50	Sand flathead	300	2 x shrimp, 2 x squat lobster	
	4/1/2023	40	14	38	15	Sand flathead	185	Empty	
	4/1/2023	41	14	80	28	Sand flathead	215	1 x squat lobster	
	4/1/2023	42	14	48	18	Sand flathead	205	1 x squat lobster, 1 x decomposed fish	
	4/1/2023	43	15	99	25	Sand flathead	250	Empty	4 x regurgitated crab (*Petrolisthes elongatus*)[#]
	4/1/2023	44	15	75	20	Sand flathead	220	Empty	
	4/1/2023	45	15	60	20	Sand flathead	200	Empty	
	4/1/2023	46	16	142	33	Sand flathead	270	3 x crabs	
	4/1/2023	47	16	140	39	Sand flathead	275	Empty	
	4/1/2023	48	16	188	45	Sand flathead	295	8 x squat lobsters	

[#]*Gut contents for this observation was observed in the bucket holding the pooled sample of 3 fish, hence the gut contents could not be allocated to a single fish.*