

Adelaide Desalination Project (ADP) – DBOM

Yearly Marine Monitoring Report

For 2023

Rev	Date	Approved AdelaideAqua
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1. Ambient Marine Ecological Monitoring

1.1 Subtidal Reef

As Per the agreed OEMMP, ADP has performed this survey in 2022, and the final report has been presented in January 2023. This condition has been closed until 2025.

1.2 Baited Remote Underwater Video

As Per the agreed OEMMP, ADP has performed this survey in 2018, and the final report has been presented in January 2022. This condition has been closed until 2024.

1.3 Infauna Survey

As Per the agreed OEMMP, ADP has performed this survey in 2020, and the final report has been presented in January 2024. This condition has been closed until 2026.

2. Volumes of seawater received, and outfall discharged

Table 1 below shows the summary of seawater received and outfall discharged volumes for this reporting period.

The plant was in winter shutdown from June to August. The volume shown below during winter shutdown period is only seawater recirculation or shock dosing.

Table 1 - Intake and Discharge Volume Summary

Month	Intake (ML)	Outfall (ML)
January	1,406	909
February	992	651
March	2,828	1,758
April	1,731	1,172
May	2,006	1,263
June	48	48
July	232	232
August	467	424
September	1,362	835
October	1,848	1,226
November	1,234	797
December	1,415	889

3. Water Quality

3.1 Seawater Characteristics Results

Tables 2A and 2B below show the summary of seawater characteristics for this reporting period.

The plant was in winter shutdown from June to August and Instruments have been preserved therefore results are not available from June to August.

Table 2A - Seawater Characteristics Summary-Online Analyser

Parameter	Conductivity	Temperature	pH	DO
	µS/cm	C		mg/L
January	56184	20.9	7.99	7.74
February	55994	21.3	7.78	7.97
March	56284	21.2	7.90	8.05
April	56071	19.2	7.94	8.66
May	56777	17.2	7.84	9.09
June	N/A	N/A	N/A	N/A
July	N/A	N/A	N/A	N/A
August	N/A	N/A	N/A	N/A
September	55972	15.50	8.01	9.30
October	56704	16.66	7.92	8.99
November	56718	17.90	7.90	8.02
December	56440	19.17	8.18	7.97

Source: Online analyser (10 minutes intervals data over 12 month)

Table 2B - Seawater Characteristics Summary-External lab

Parameter	Biochemical Oxygen Demand	Suspended solids	Nitrogen (Total)	Phosphorus (Total)	Zinc (Total)	Lead (Total)	Copper (Total)
	mg/L	mg/L	mg/L as N	mg/L as P	mg/L	mg/L	mg/L
January	<2	<1	0.11	<0.005	<0.0004	<0.0002	<0.003
February	<2	<1	0.15	<0.005	<0.0004	<0.0002	<0.003
March	<2	<1	0.24	0.032	<0.0004	<0.0002	<0.003
April	<2	<1	0.15	0.009	<0.0004	<0.0002	<0.003
May	N/A	<1	0.18	<0.005	<0.0004	<0.0002	<0.003

Parameter	Biochemical Oxygen Demand	Suspended solids	Nitrogen (Total)	Phosphorus (Total)	Zinc (Total)	Lead (Total)	Copper (Total)
	mg/L	mg/L	mg/L as N	mg/L as P	mg/L	mg/L	mg/L
June	N/A	N/A	N/A	N/A	N/A	N/A	N/A
July	N/A	N/A	N/A	N/A	N/A	N/A	N/A
August	N/A	N/A	N/A	N/A	N/A	N/A	N/A
September	<2	<1	0.12	0.010	<0.0004	<0.0002	<0.003
October	<2	<1	0.11	0.007	<0.0004	<0.0002	<0.003
November	<2	<1	0.11	0.006	<0.0004	<0.0002	<0.003
December	<2	<1	0.10	0.014	<0.0004	<0.0002	<0.003

Source: AWQC

3.2 Discharge Characteristics Results

Tables 3A and 3B below show the summary of discharge characteristics for this reporting period.

Table 3A - Discharge Characteristics Summary-Online Analyser

Parameter	Conductivity	Temperature	pH	DO	Cl ₂
	µS/cm	C		mg/L	mg/L
January	77506	21.15	7.85	7.39	0
February	75223	21.90	7.74	7.18	0
March	83164	20.60	7.86	7.86	0
April	72300	18.84	7.53	9.28	0
May	60601	14.3	7.59	10.35	0
June	N/A	N/A	N/A	N/A	N/A
July	N/A	N/A	N/A	N/A	N/A
August	N/A	N/A	N/A	N/A	N/A
September	71953	15.5	7.52	9.9	0
October	74976	16.38	7.61	9.20	0
November	79866	17.81	7.65	8.73	0
December	82066	19.93	7.75	8.46	0

Source: Online analyser (10 minutes intervals data over 12 months)

Table 3B - Discharge Characteristics Summary- External lab

Parameter	Biochemical Oxygen Demand	Suspended solids	Nitrogen (Total)	Phosphorus (Total)	Zinc (Total)	Lead (Total)	Copper (Total)
	mg/L	mg/L	mg/L as N	mg/L as P	mg/L	mg/L	mg/L
January	<2	<1	0.18	0.09	<0.003	<0.0002	<0.0003
February	<2	<1	0.20	0.09	<0.003	<0.0002	<0.0003
March	<2	<1	0.21	0.09	<0.004	<0.0002	<0.0003
April	<2	<1	0.22	0.09	<0.004	<0.0002	<0.0003
May	<2	<1	0.17	0.08	<0.004	<0.0002	<0.0003
June	N/A	N/A	N/A	N/A	N/A	N/A	N/A
July	N/A	N/A	N/A	N/A	N/A	N/A	N/A
August	N/A	N/A	N/A	N/A	N/A	N/A	N/A
September	<2	6.6	0.19	0.09	<0.004	<0.0002	<0.0003
October	<2	3.7	0.15	0.08	<0.004	<0.0002	0.0006
November	<2	3.0	0.17	0.09	<0.004	<0.0002	<0.0003
December	<2	3.5	0.16	0.10	<0.004	<0.0002	0.0013

Source: AWQC

The plant was in winter shutdown from June to August and Instruments have been preserved therefore results are not available from June to August.

Discharge stream pH value dropped in correlation to intake pH drop due to intake shock dosing and came back to normal operation range after shock dosing.

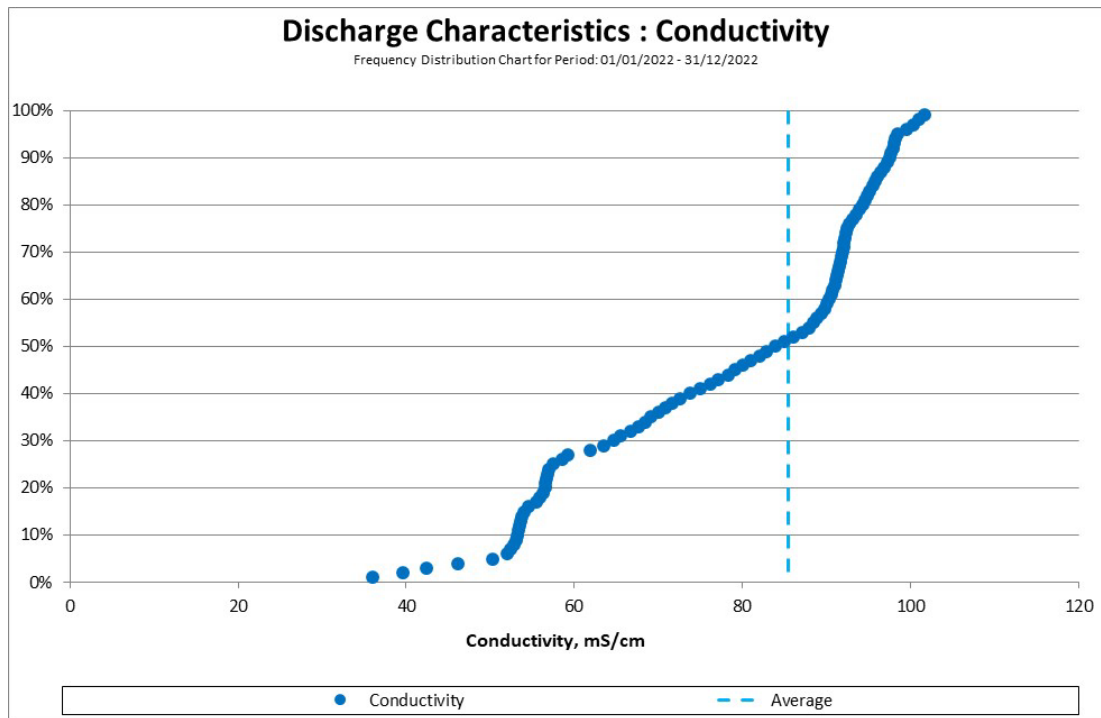


Figure 1 - Discharge Characteristic: Conductivity - Frequency Distribution

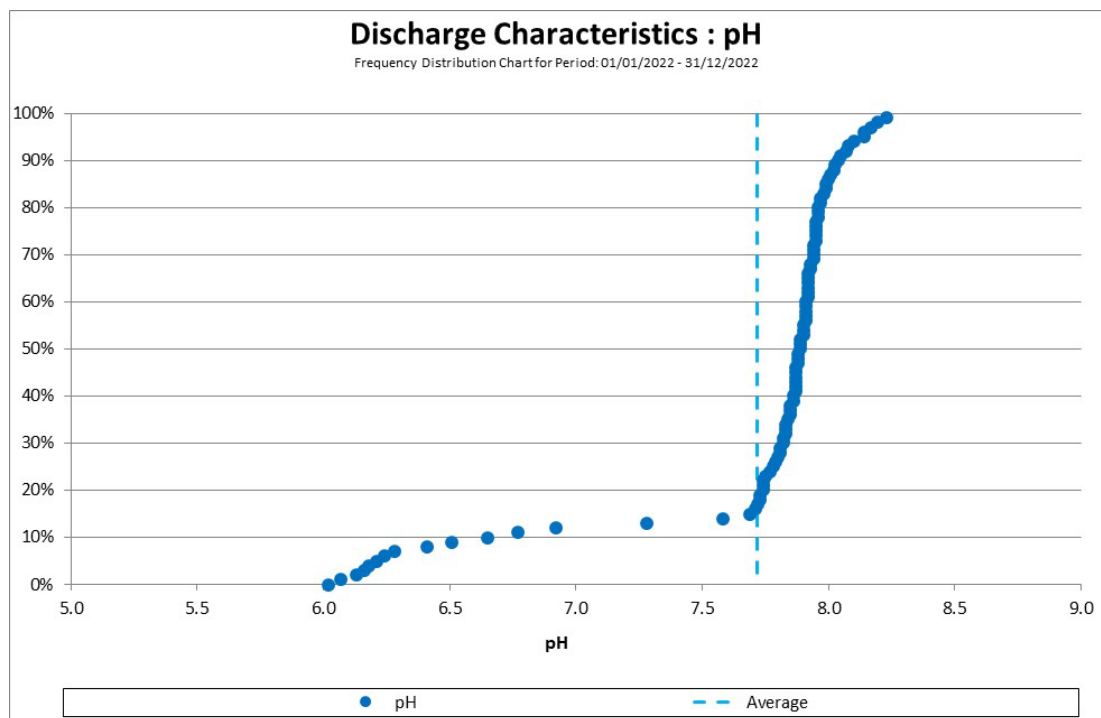


Figure 2 - Discharge Characteristics: pH - Frequency Distribution

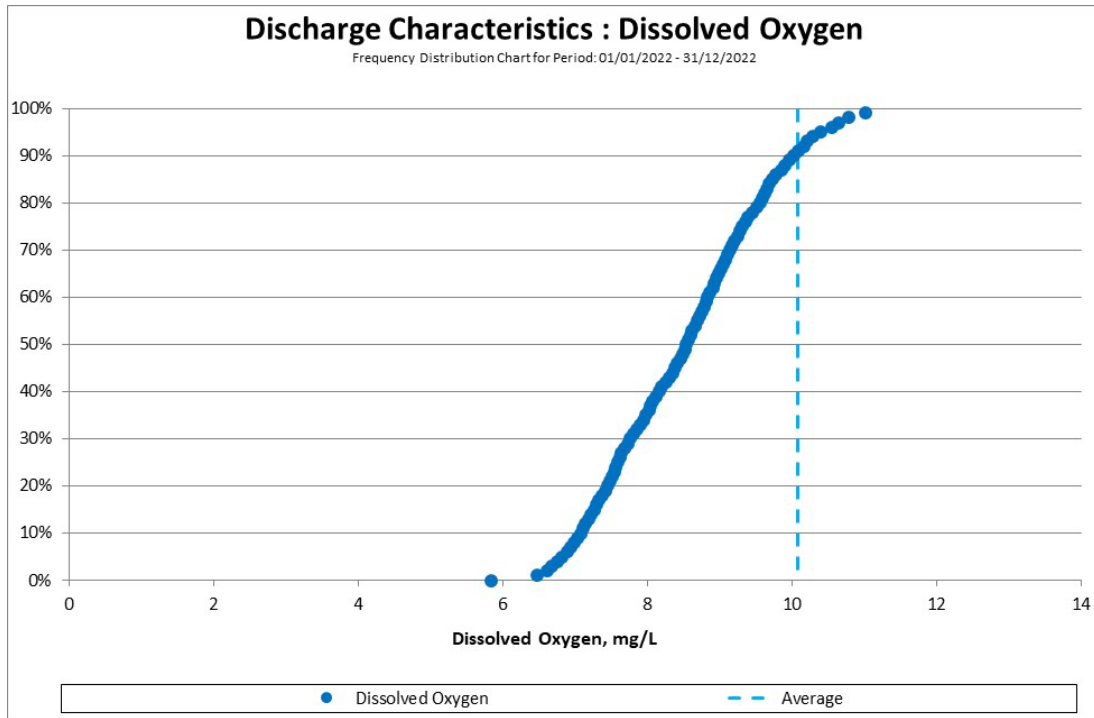


Figure 3 - Discharge Characteristics: DO - Frequency Distribution

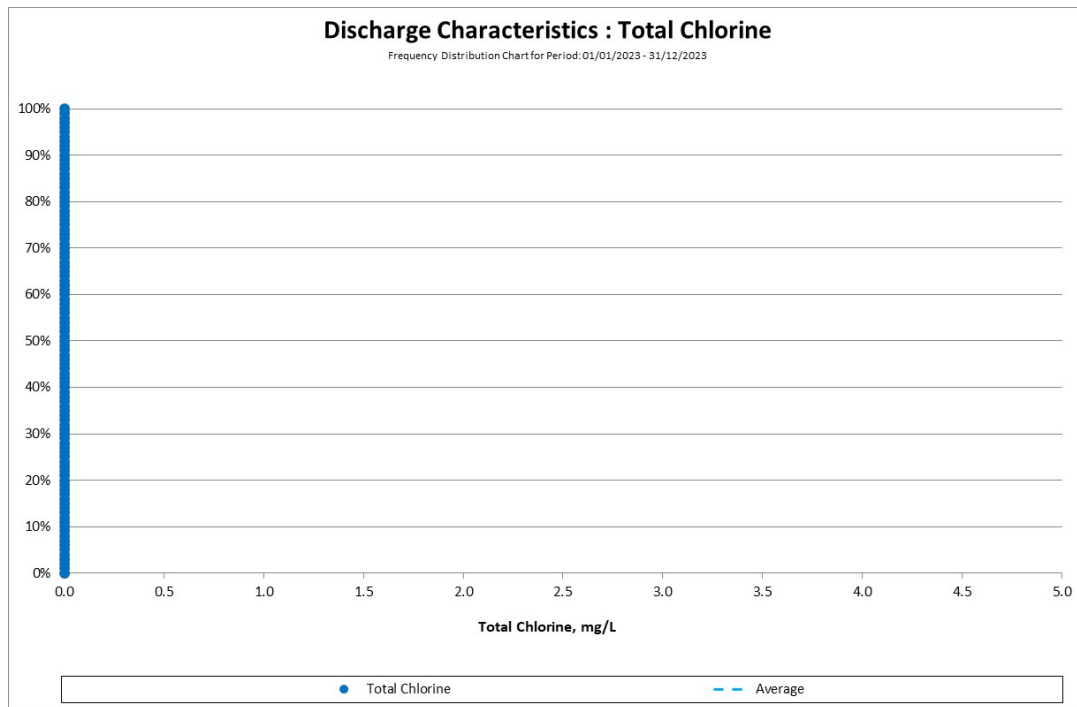


Figure 4 - Discharge Characteristics: Total Chlorine - Frequency Distribution

4. Salinity Monitoring Results

4.1 Average Salinity Discharge (U-149) Results

Table 4 below shows the summary of salinity readings at the edge of the mixing zone (100m from the discharge point) for this reporting period.

Average Salinity Discharge (ppt)												
	January	February	March	April	May	June	July	August	September	October	November	December
Average	40.13	39.45	40.21	39.94	40.39	40.56	N/A	N/A	40.15	40.15	40.30	40.32
Minimum	39.81	37.41	39.83	39.58	39.62	40.14	N/A	N/A	39.49	39.48	40.09	39.81
Maximum	41.32	41.00	41.28	41.17	41.64	41.20	N/A	N/A	41.25	41.36	41.36	41.35

Table 4 – Average Salinity Discharge Summary

No exceedances or issues associated with Average Salinity Discharge (U-149) were identified during this reporting period.

4.2 Salinity Discharge (U-145, U-146) Results

Table 5 below shows the summary of salinity discharge ratio results for this reporting period.

Salinity Discharge Ratio												
	January	February	March	April	May	June	July	August	September	October	November	December
Average	1.16	1.12	1.25	1.15	1.22	1.00	1.0	1.0	1.15	1.19	1.10	1.16
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.01	1.00	1.00
Maximum	1.80	1.82	1.86	1.87	1.87	1.00	1.0	1.0	1.84	1.81	1.89	1.90

Table 5 Salinity discharge ratio summary

Over the quarter, the highest salinity discharge ratio recorded was 1.90 on 28/12/2023. This confirms that the discharge salinity did not exceed the intake salinity by a factor of 2.1. No exceedances, issues associated with Salinity Discharge (U-145, U-146) were identified during this reporting period.