Adelaide Desalination Project (ADP) – DBOM

Quarterly Salinity Monitoring Report

January to March 2024

Rev	Date	Approved AdelaideAqua
1	14-May-24	R. Liu

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1. Volumes of seawater received, and outfall discharged

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

Table 1 - Intake and Discharge Volume Summary

Month	Intake (ML)	Outfall (ML)
January	1,475	952
February	1,226	768
March	1,666	988
Quarterly Total	4,367	2,708

2. Water Quality

2.1 Seawater Characteristics Results

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

Table 2A - Seawater Characteristics Summary-Online Analyser

Parameter	Conductivity	Temperature	pH	DO
	µS/cm	°C	-	mg/L
Average	56,240	21.6	7.9	7.9
Minimum	54,623	18.9	6.0	6.7
Maximum	57,784	25.2	8.2	8.7

Source: Online analyser (10 minutes intervals data over 3 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
Average	<2	<1	0.12	0.009	<0.0004	<0.0002	<0.0003
Minimum	<2	<1	<0.05	<0.005	<0.0004	<0.0002	<0.0003
Maximum	5	2	0.18	0.012	0.0019	<0.0002	0.0014

Source: AWQC

The ADP conducts intake chemical shock dosing to control the bio-growth in the intake tunnel. During the intake shock dosing, pH dropped to 6.0 (normal operation range 8.0-8.5) due to the acid dosing and came back to normal sea water pH range after shock dosing.

2.2 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
Average	85,064	21.9	7.89	8.2	0.0
Minimum	10,908	14.5	6.03	5.2	0.0
Maximum	102,958	32.0	8.95	10.0	0.0

Source: Online analyser (10 minutes intervals data over 3 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
Average	<2	3.1	0.18	0.101	<0.0004	<0.0002	0.0011
Minimum	<2	<1	0.10	0.082	<0.0004	<0.0002	<0.0003
Maximum	<2	5	0.25	0.126	0.0024	<0.0002	0.0025

Source: AWQC

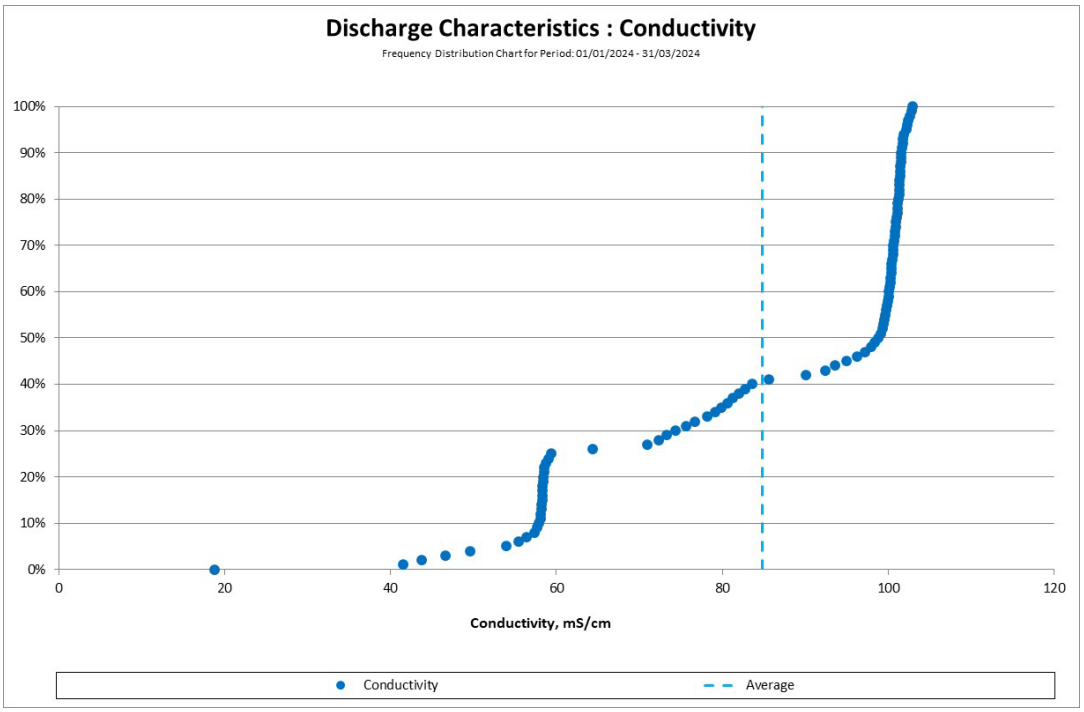

Figure 1 - Discharge Characteristic: Conductivity - Frequency Distribution

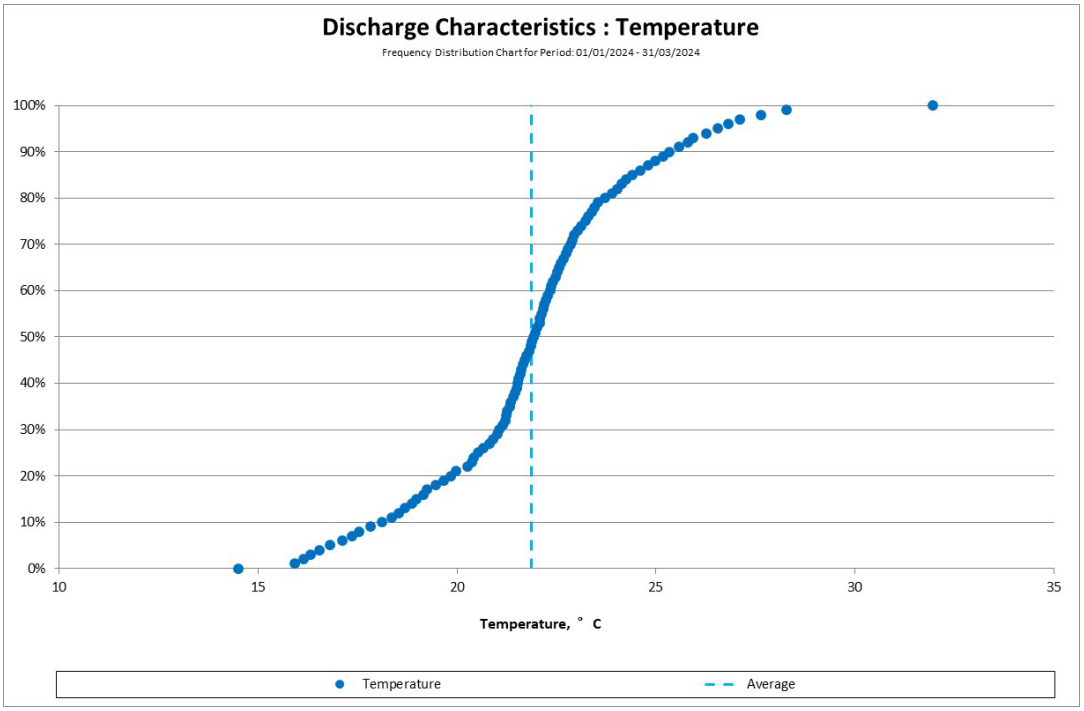

Figure 2 - Discharge Characteristics: Temperature - Frequency Distribution

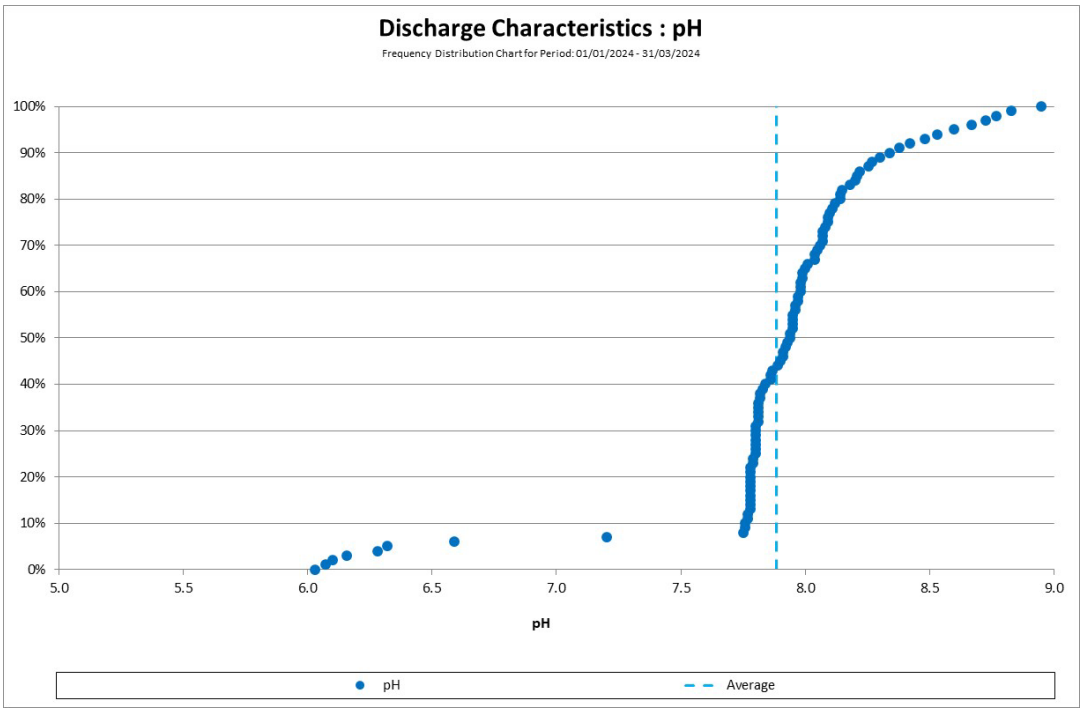

Figure 3 - Discharge Characteristics: pH - Frequency Distribution

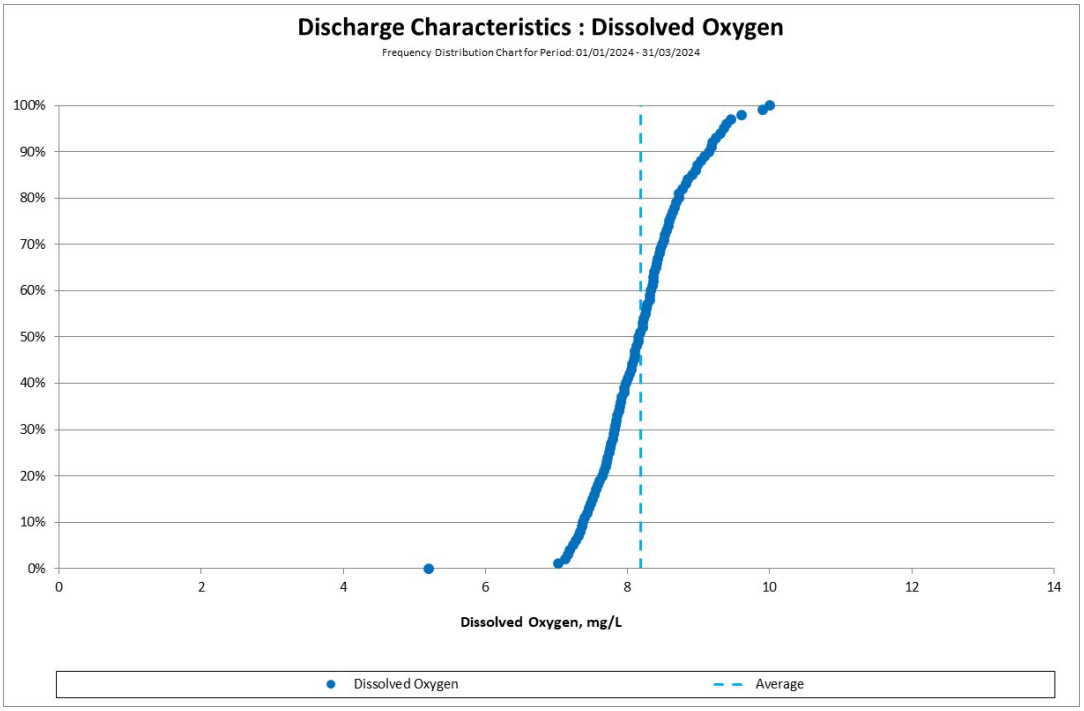

Figure 4 - Discharge Characteristics: DO - Frequency Distribution

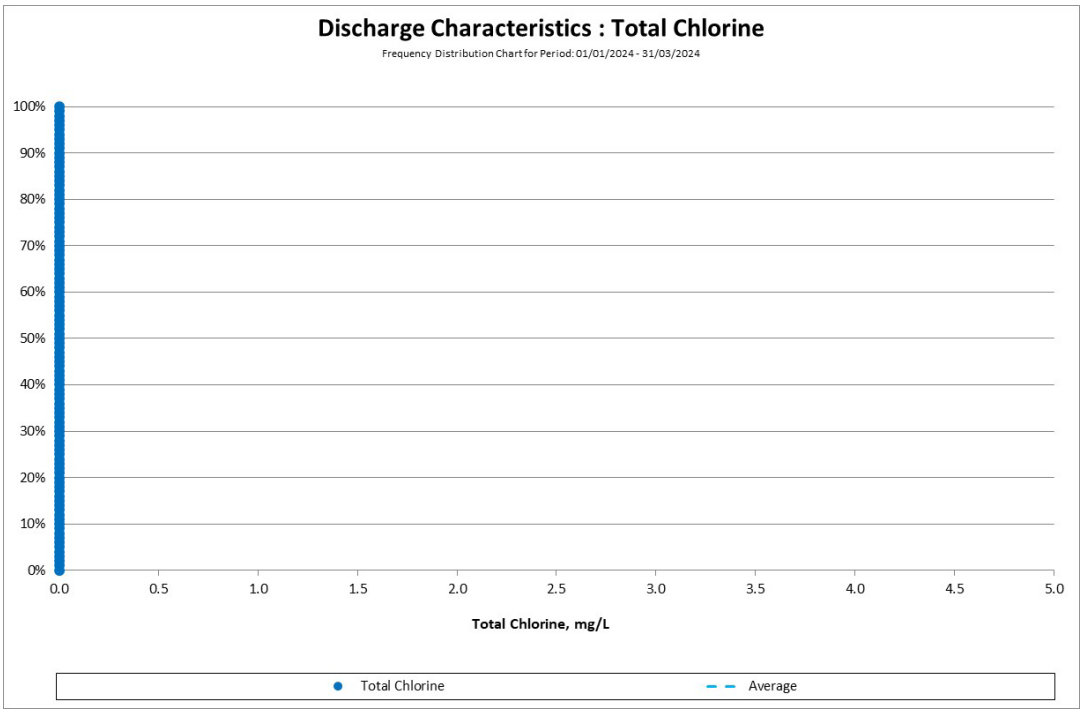

Figure 5 - Discharge Characteristics: Chlorine - Frequency Distribution

3. Salinity Monitoring Results

3.1 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.

Table 4 – Average Salinity Discharge Summary

	Average Salinity Discharge (ppt)		
	January	February	March
Average	40.22	40.10	40.38
Minimum	39.87	38.93	39.76
Maximum	41.38	41.15	41.47

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

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

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

Table 5 Salinity discharge ratio summary

	Salinity Discharge Ratio		
	January	February	March
Average	1.19	1.18	1.23
Minimum	1.00	1.00	1.00
Maximum	1.85	1.88	1.89

Over the quarter, the highest salinity discharge ratio recorded was 1.88 on 21/03/2024. 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.