

Adelaide Desalination Project (ADP) – DBOM

Quarterly Salinity Monitoring Report

July to September 2021

Rev	Date	Approved AdelaideAqua
1	11-Oct-21	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)
July	375	308
August	982	616
September	1,228	768
Quarterly Total	2,585	1,692

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	55,674	13.7	7.9	8.6
Minimum	50,084	11.8	6.0	6.9
Maximum	61,310	15.6	8.8	10.9

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	3	3	0.12	0.01	<0.003	<0.001	<0.001
Minimum	<2	<1	<0.05	<0.005	<0.003	<0.001	<0.001
Maximum	3	5	0.17	0.02	<0.003	<0.001	<0.001

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	78,636	14.8	7.72	9.9	0.0
Minimum	20,226	7.0	6.10	7.8	0.0
Maximum	97,765	24.6	8.73	15.8	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	1.5	3.7	0.099	<0.003	<0.001	<0.001
Minimum	4	1	<1	0.044	<0.003	<0.001	<0.001
Maximum	<2	2	6	0.158	<0.003	<0.001	0.003

Source: AWQC

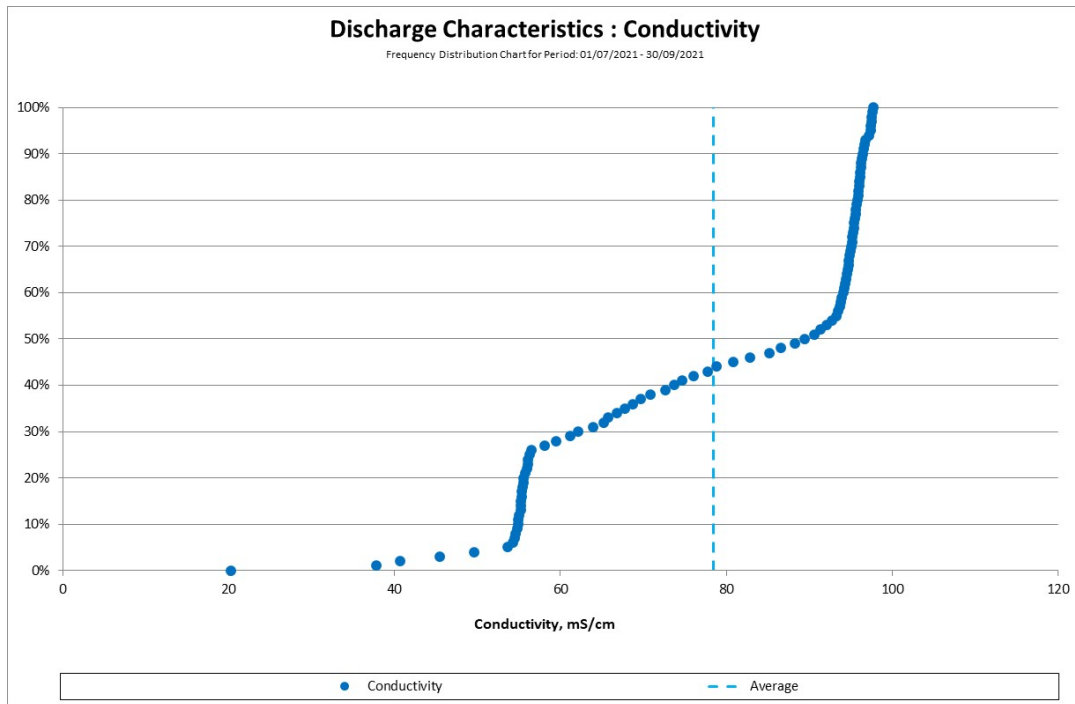


Figure 1 - Discharge Characteristic: Conductivity - Frequency Distribution

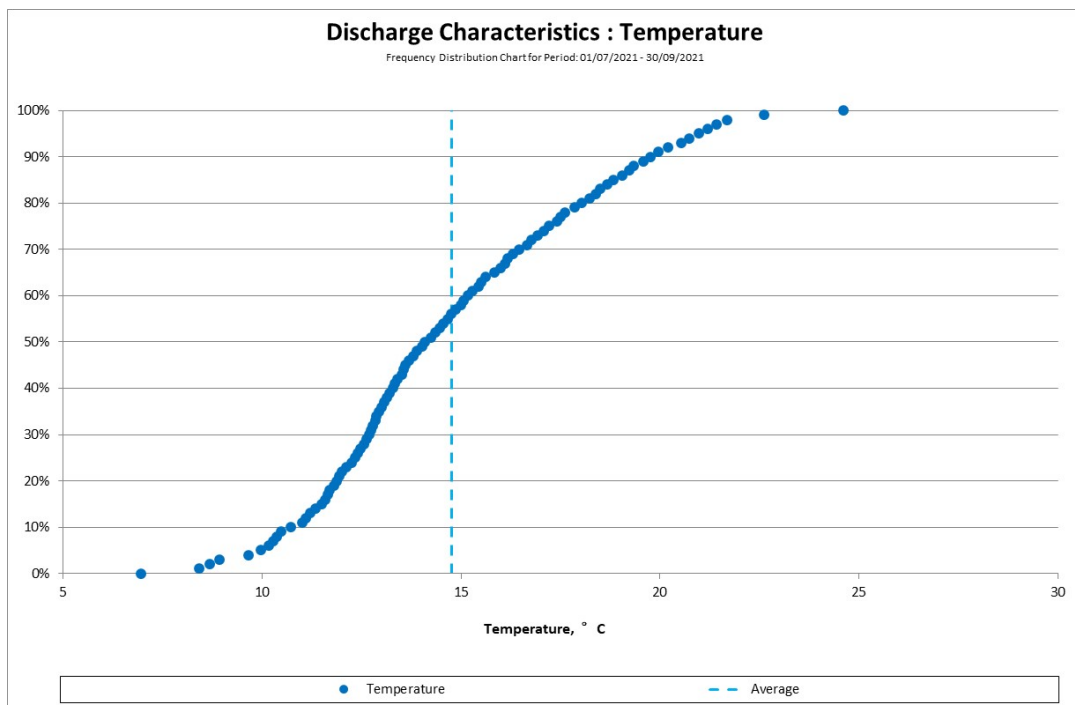


Figure 2 - Discharge Characteristics: Temperature - Frequency Distribution

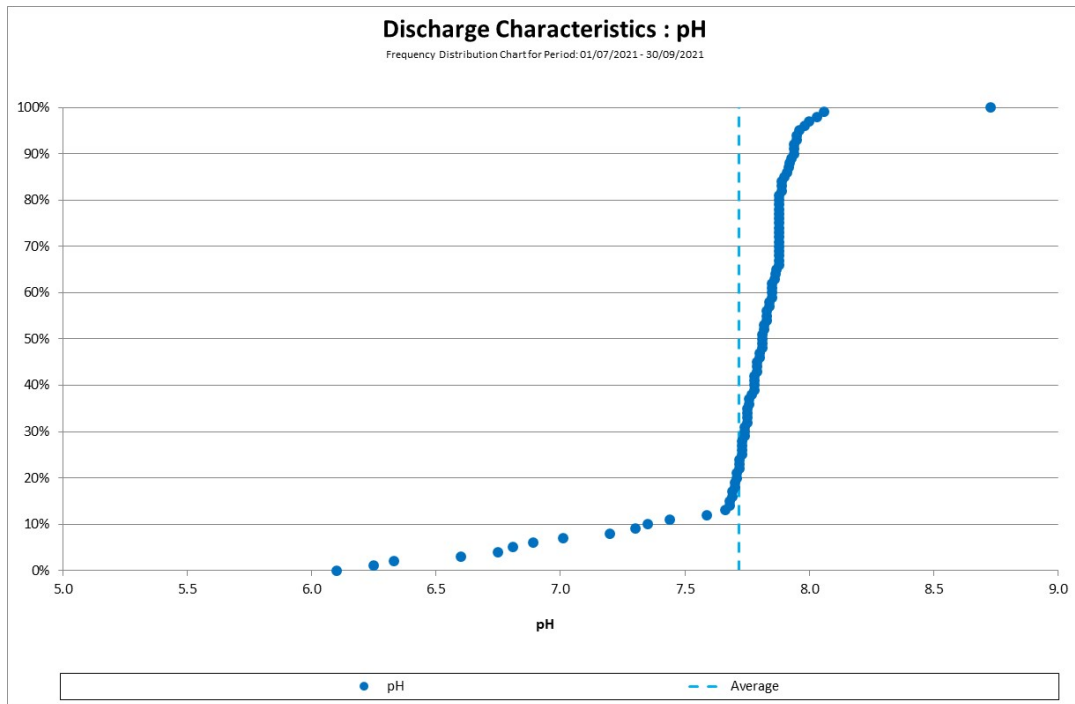


Figure 3 - Discharge Characteristics: pH - Frequency Distribution

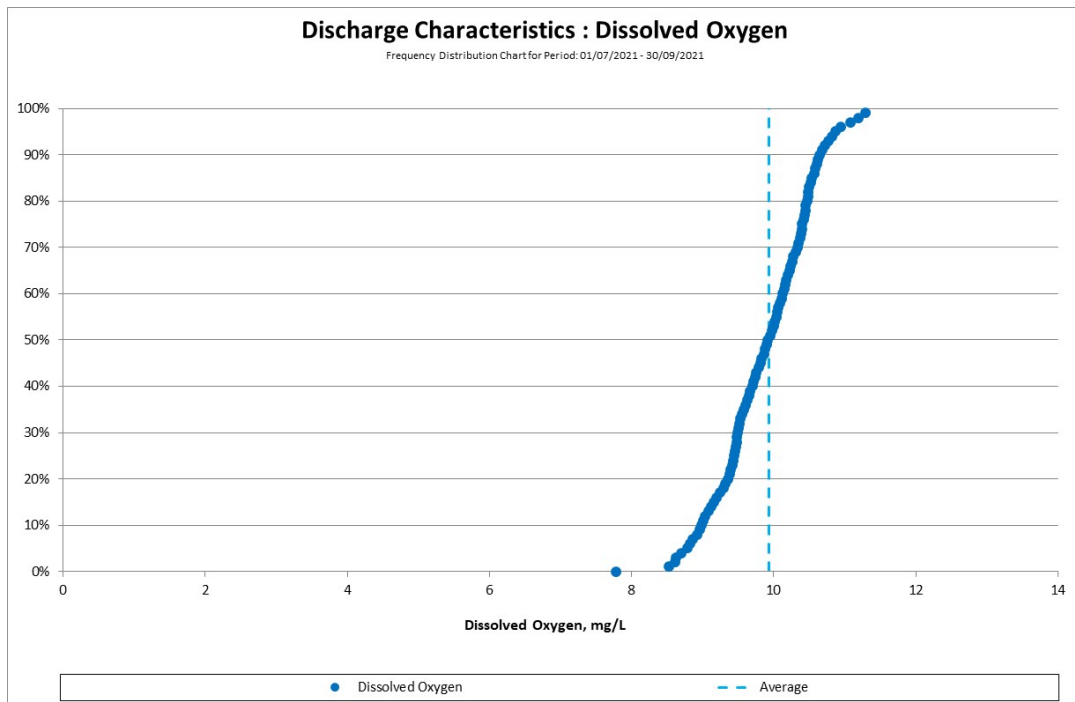


Figure 4 - Discharge Characteristics: DO - Frequency Distribution

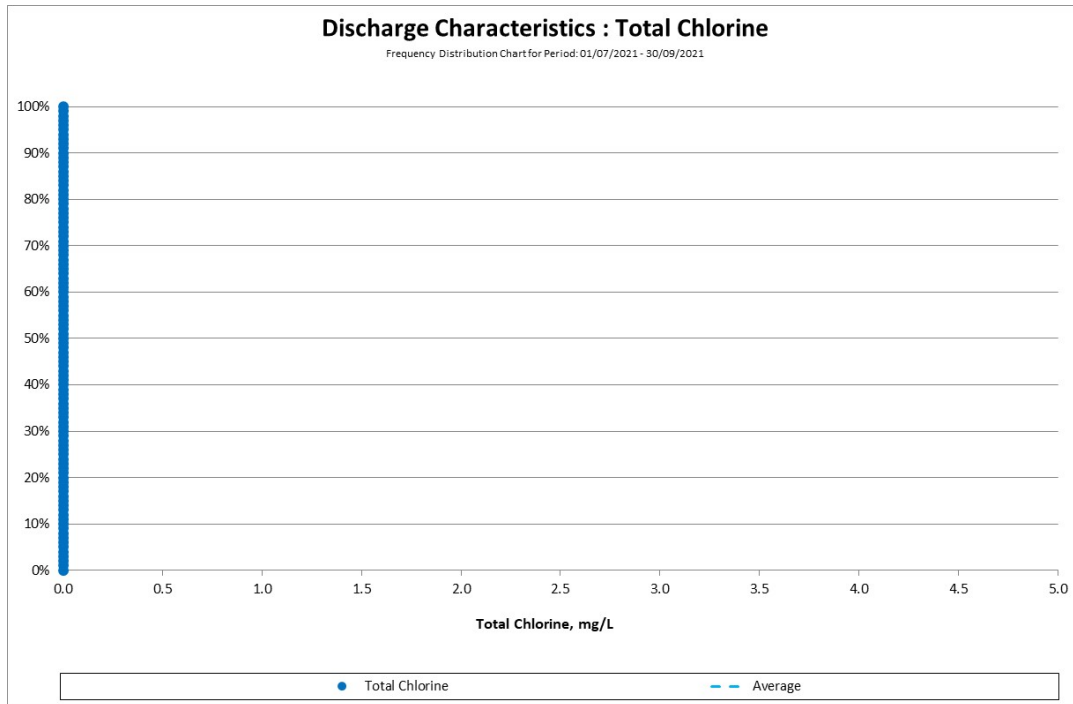


Figure 5 - Discharge Characteristics: Chlorine - Frequency Distribution

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)		
	July	August	September
Average	37.00	36.67	36.43
Minimum	34.50	36.41	35.19
Maximum	39.38	39.19	37.49

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		
	July	August	September
Average	1.04	1.15	1.17
Minimum	1.00	1.00	1.00
Maximum	1.90	1.94	1.90

Over the quarter, the highest salinity discharge ratio recorded was 1.94 on 24/08/2021. 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.