

Adelaide Desalination Project (ADP) – DBOM

# Quarterly Salinity Monitoring Report

July to September 2022

Rev	Date	Approved AdelaideAqua
1	3-Nov-22	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. The plant winter shutdown period started from 2<sup>nd</sup> June to 30<sup>th</sup> August.

**Table 1 - Intake and Discharge Volume Summary**

Month	Intake (ML)	Outfall (ML)
July	107	107
August	618	550
September	1,623	979
<b>Quarterly Total</b>	<b>2,348</b>	<b>1,636</b>

## 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
<b>Average</b>	54,748	13.6	8.0	8.8
<b>Minimum</b>	51,125	11.0	6.1	6.8
<b>Maximum</b>	57,125	16.1	8.3	10.0

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
<b>Average</b>	<2	<1	0.17	0.01	<0.003	<0.001	<0.001
<b>Minimum</b>	<2	<1	0.12	<0.005	<0.003	<0.001	<0.001
<b>Maximum</b>	<2	2	0.28	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**

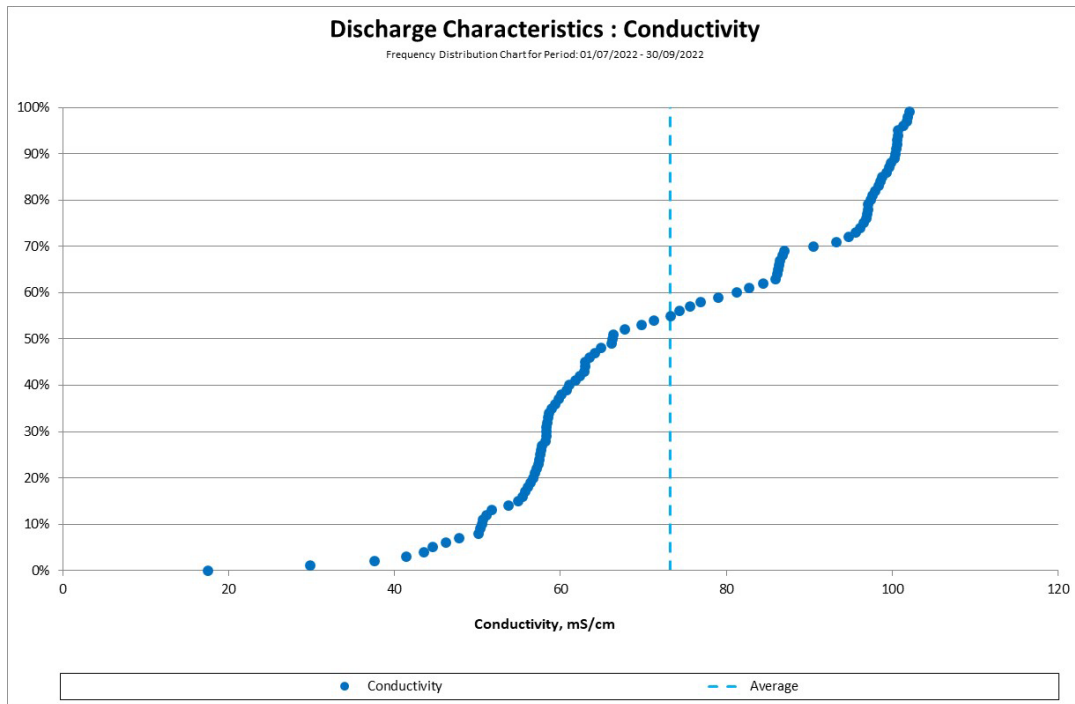
Parameter	Conductivity	Temperature	pH	DO	Cl <sub>2</sub>
	µS/cm	C		mg/L	mg/L
<b>Average</b>	73,219	14.2	7.82	8.8	0.0
<b>Minimum</b>	17,486	8.1	5.06	6.7	0.0
<b>Maximum</b>	129,284	20.0	9.37	13.6	0.0

*Source: Online analyser (10 minutes intervals data over 3 months)*

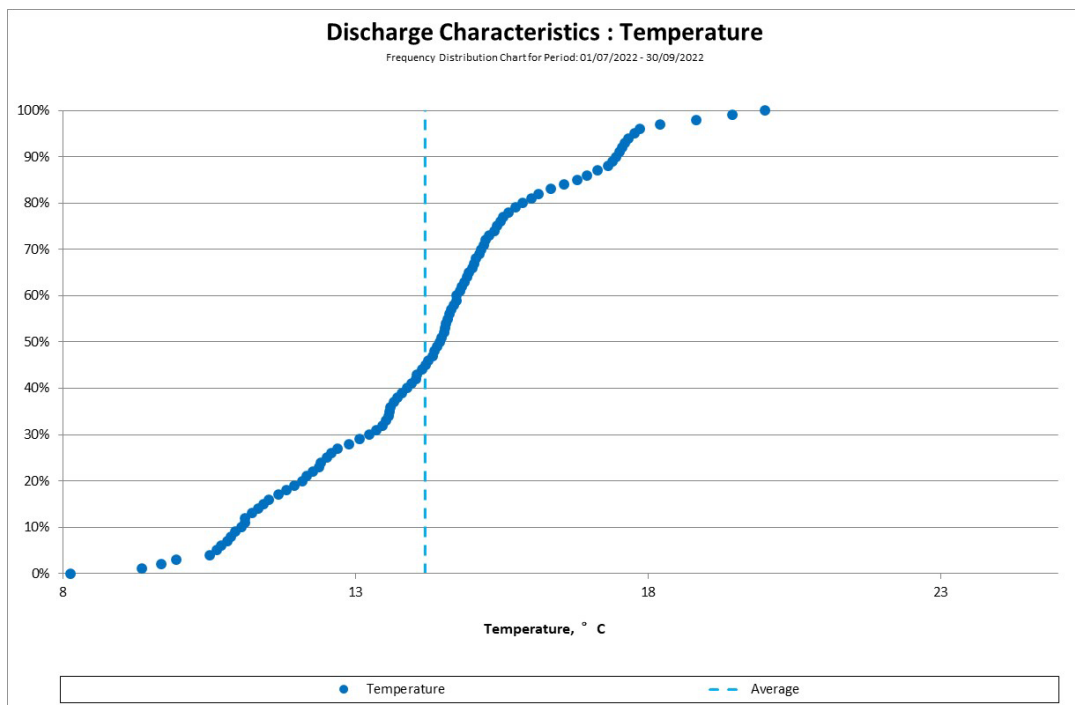
**Table 3B - Discharge Characteristics Summary- External lab**

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
<b>Average</b>	<2	<1	0.19	0.069	<0.003	<0.001	<0.001
<b>Minimum</b>	<2	<1	0.16	0.064	<0.003	<0.001	<0.001
<b>Maximum</b>	4	6	0.25	0.075	0.004	<0.001	0.002

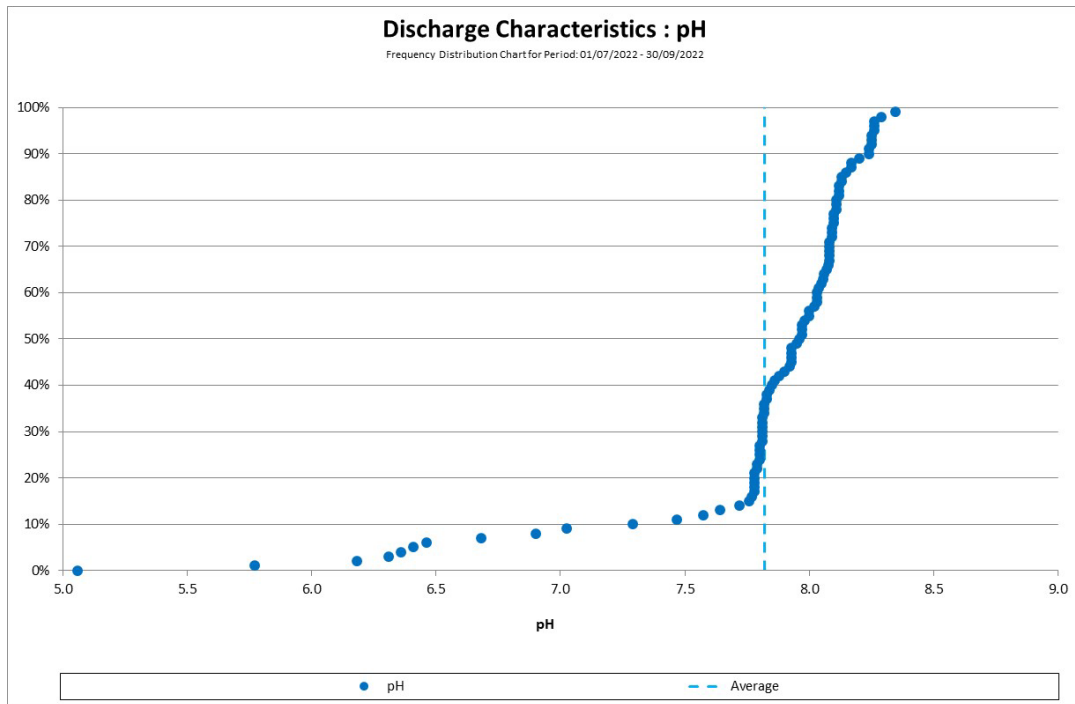
*Source: AWQC*



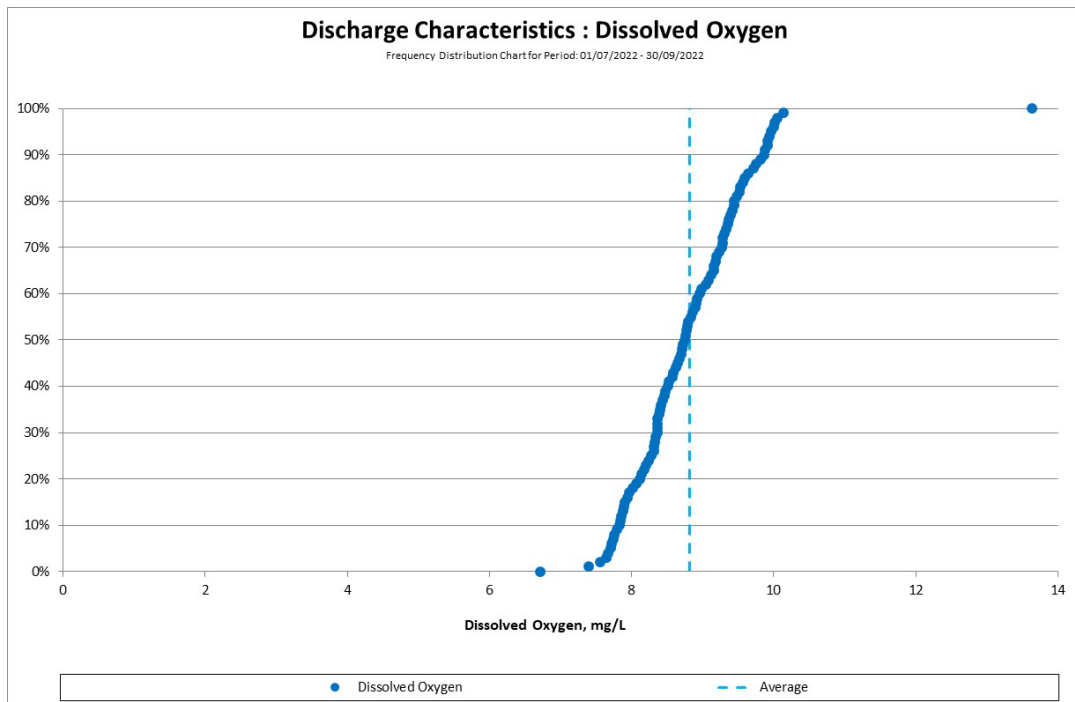
**Figure 1 - Discharge Characteristic: Conductivity - Frequency Distribution**



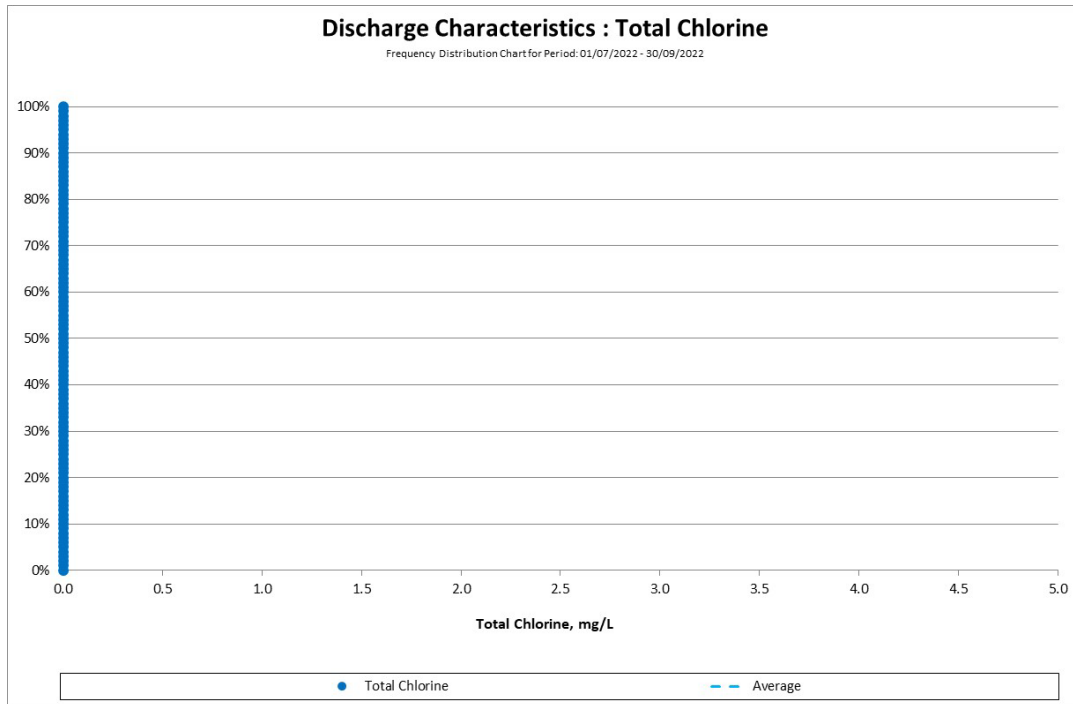
**Figure 2 - Discharge Characteristics: Temperature - Frequency Distribution**



**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
<b>Average</b>	36.65	36.65	36.50
<b>Minimum</b>	36.29	36.34	36.00
<b>Maximum</b>	36.95	37.43	37.55

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
<b>Average</b>	1.0	1.0	1.2
<b>Minimum</b>	1.0	1.0	1.0
<b>Maximum</b>	1.0	1.8	1.9

Over the quarter, the highest salinity discharge ratio recorded was 1.91 on 14/09/2022. 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.