

## Supplementary File

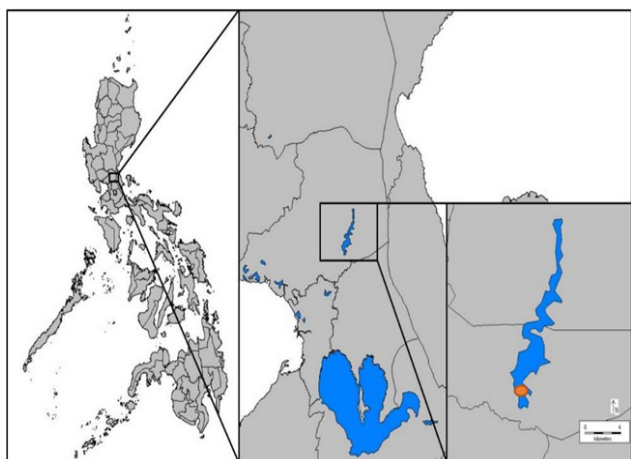


Figure 1: The sampling site of the study. The southern tip of the AHD (14° 54' 32.976" N, 121° 10' 21.9576" E) is the water collection site that is connected to the Norzagaray River.

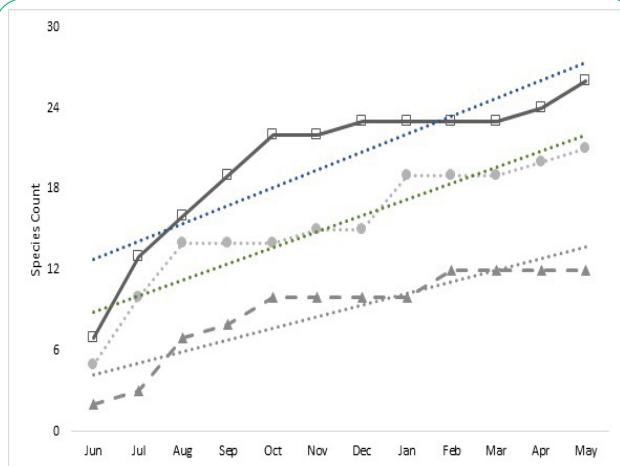
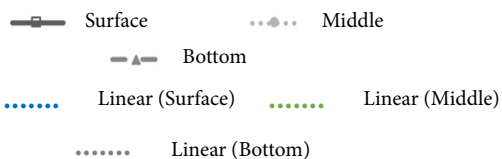


Figure 2: Species accumulation curve of phytoplankton community at the three water layers in AHD.



Note: The broken line indicates a trend line.

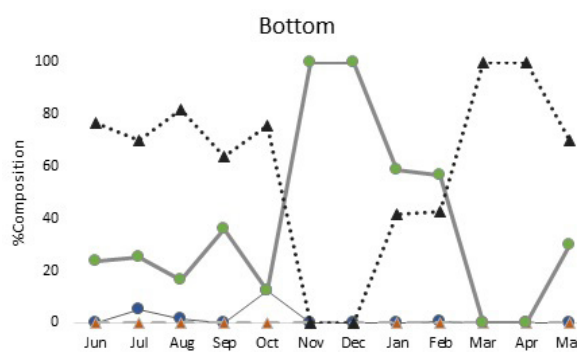
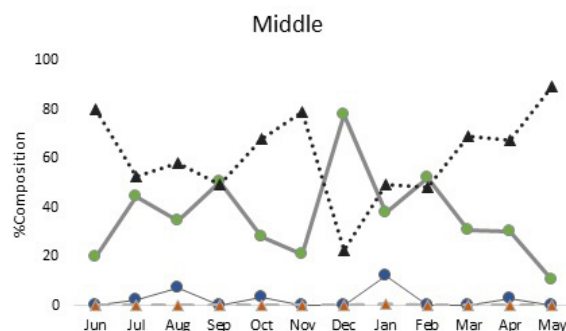
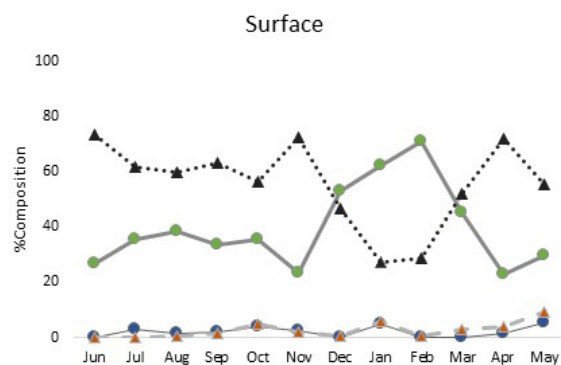
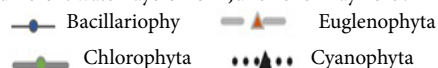
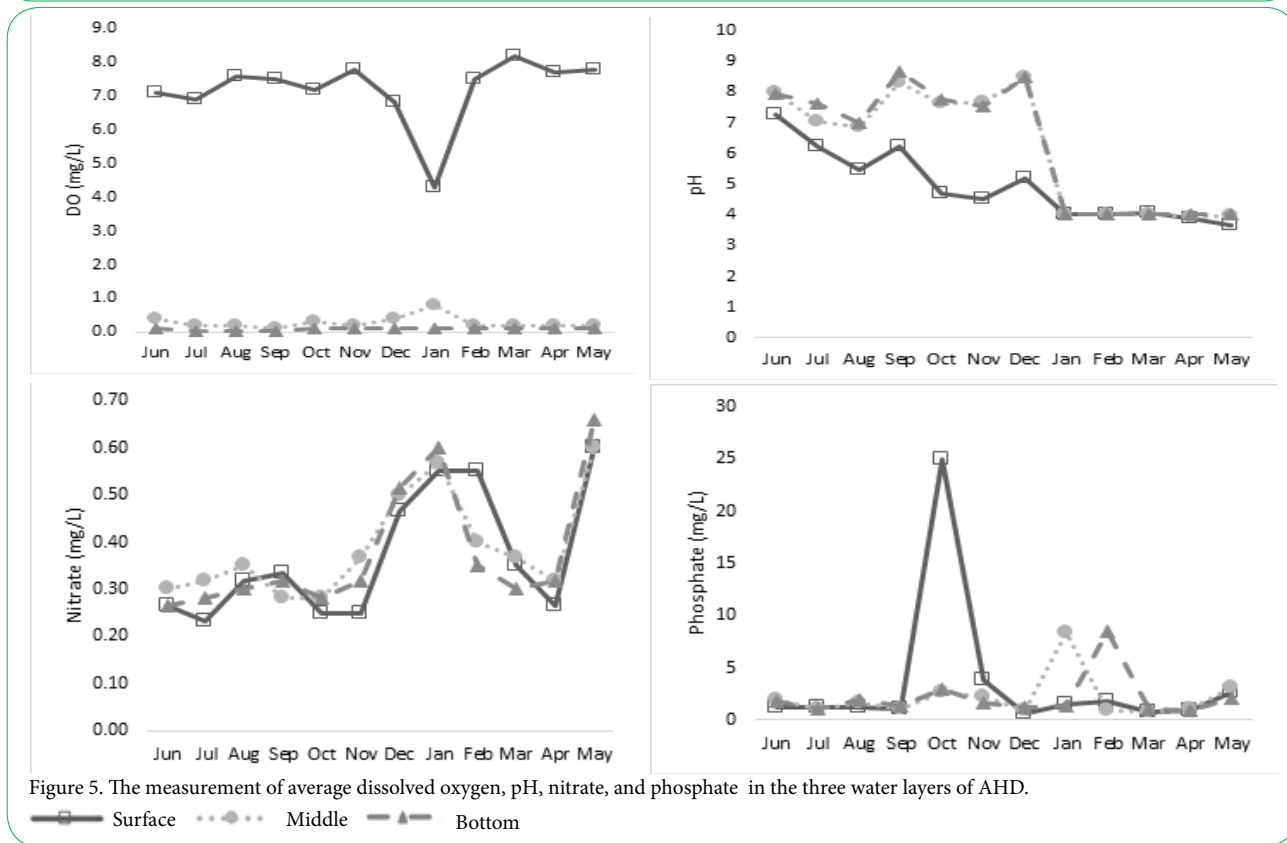
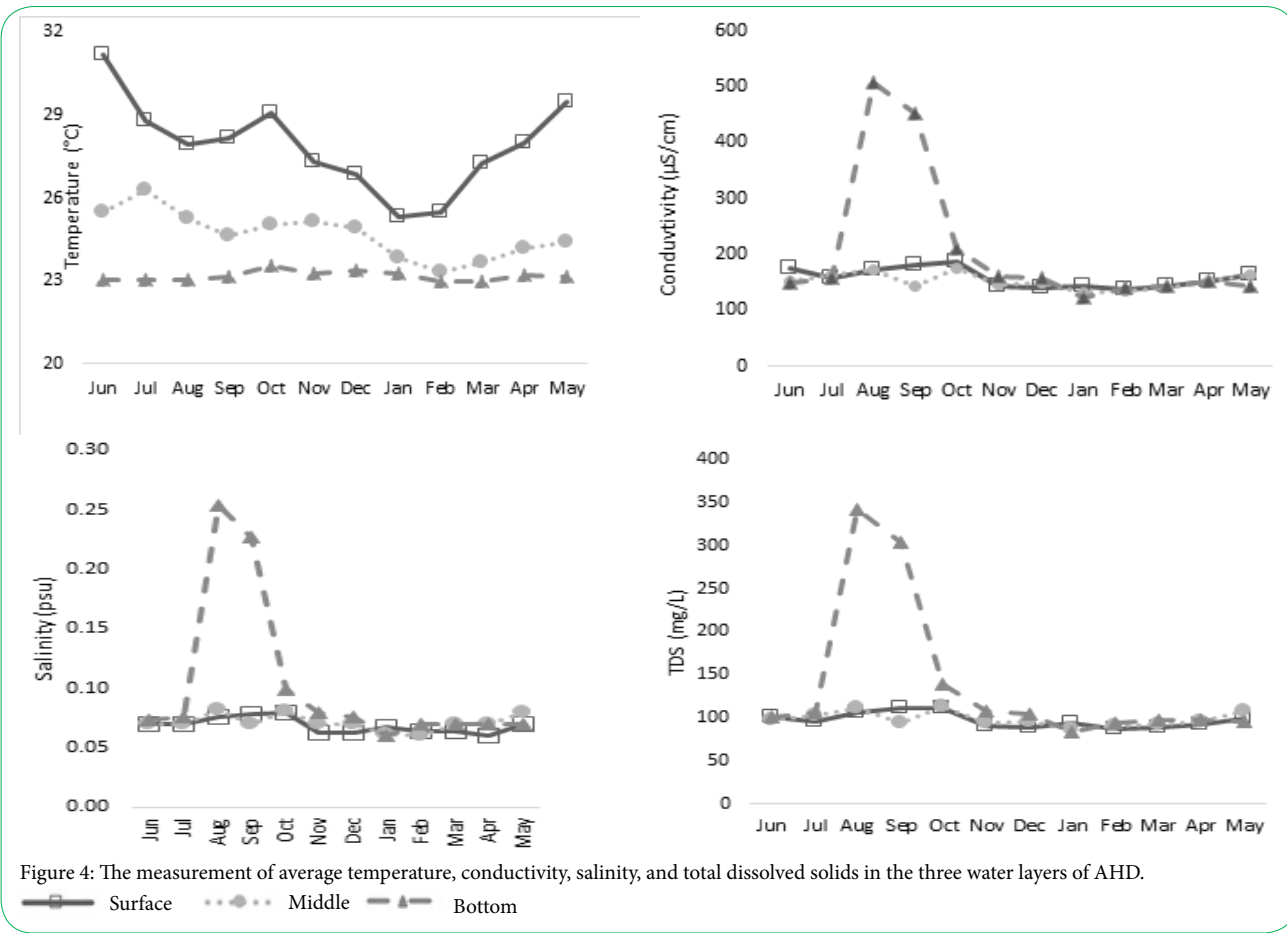


Figure 2: The abundance of phytoplankton community in AHD at different water layers from June 2018-May 2019.





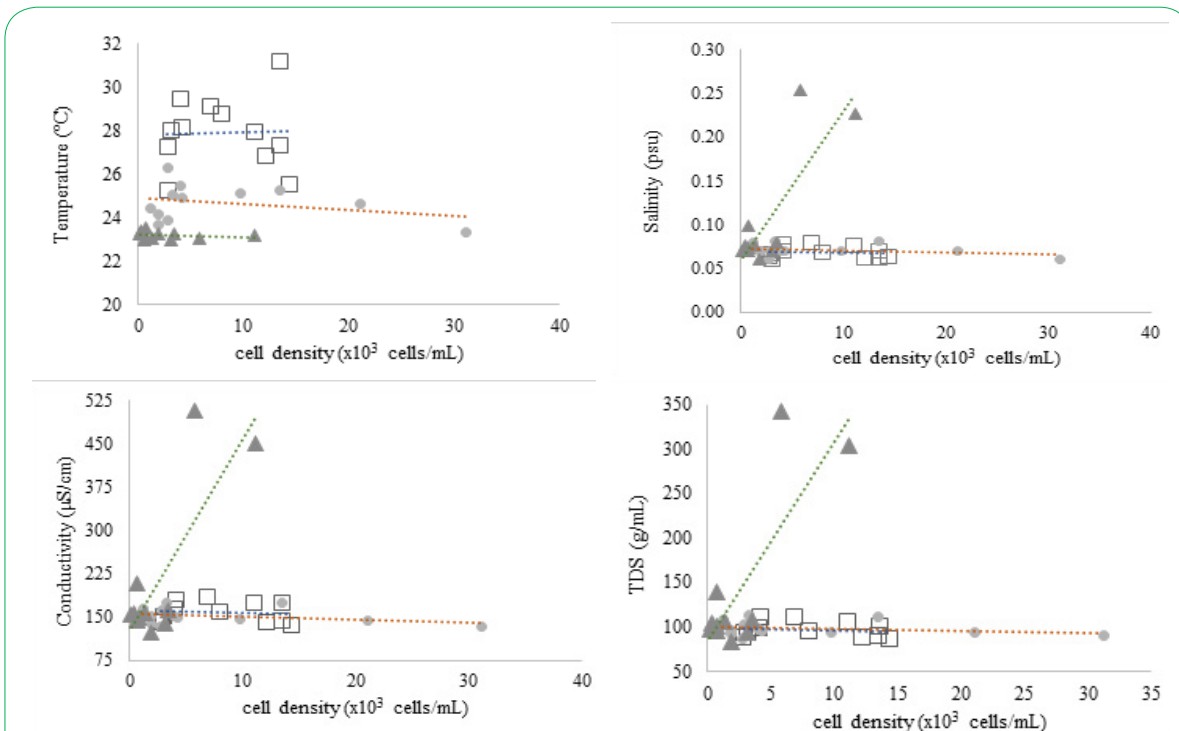


Figure 6: The phytoplankton density in AHD based on the different layers of water and its relationship to temperature, salinity, conductivity, and total dissolved solids. □ Surface ● Middle △ Bottom  
 ..... Linear (Surface) ..... Linear (Middle) ..... Linear (Bottom)

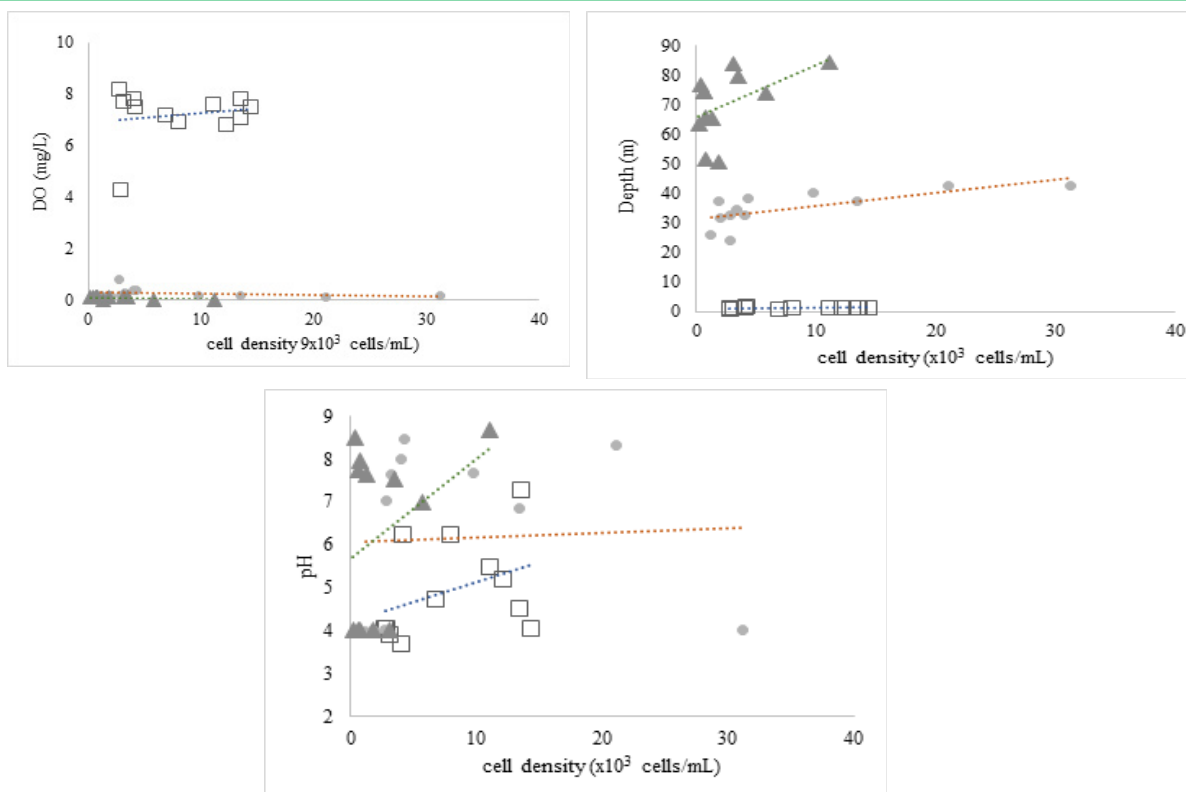
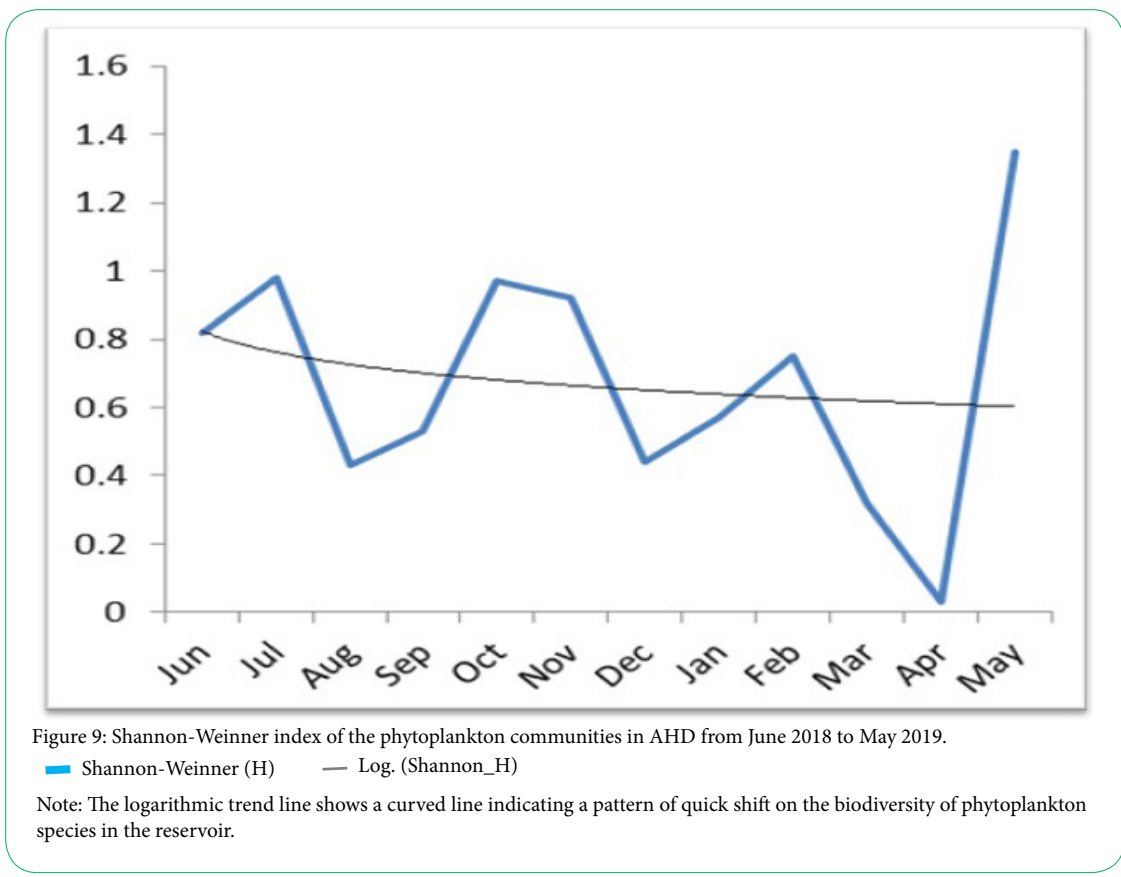
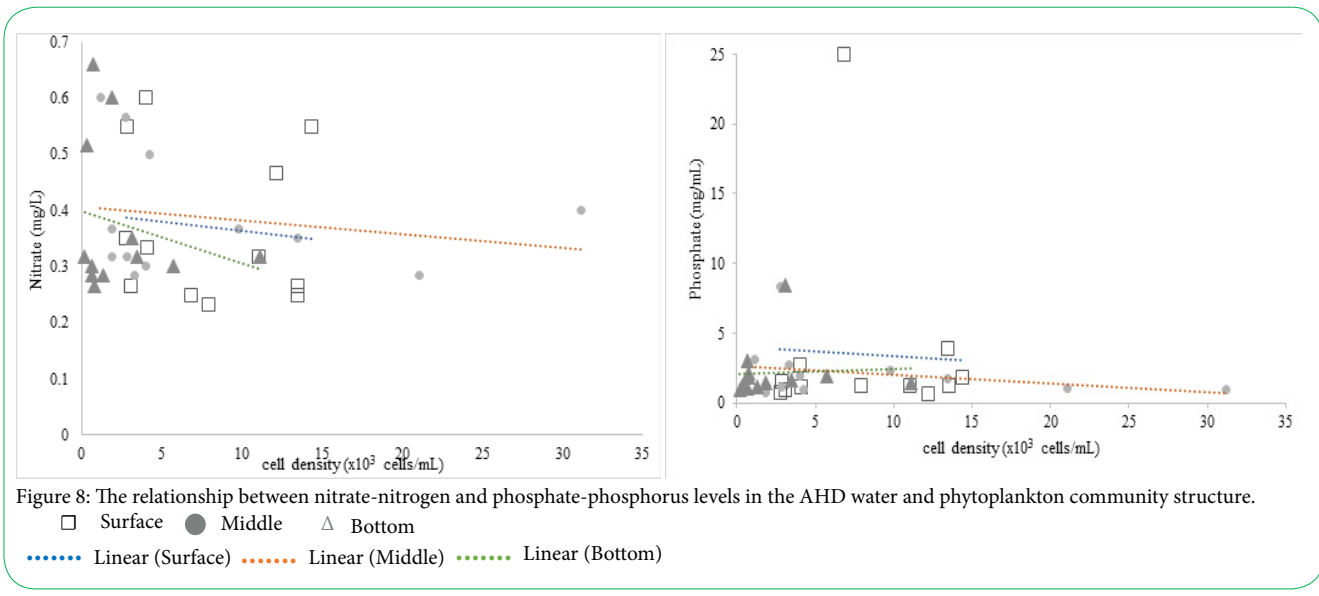


Figure 7: The phytoplankton density in AHD based on the different layers of water and its relationship to dissolved oxygen, depth, and pH. □ Surface ● Middle △ Bottom  
 ..... Linear (Surface) ..... Linear (Middle) ..... Linear (Bottom)



Species	Months											
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
<b>Bacillariophyta</b>												
Bacillariophyceae (C)												
<i>Fragilaria crotonensis</i>					x			*			+*	+
<i>Synedra ulna</i>	+		*	*	+	+		*				
<i>Melosira granulata</i> var. <i>angustissima</i> f. <i>spiralis</i> Hust		+x										
<i>Melosira granulata</i> var. <i>angustissima</i> MÜll.			*									+
<i>Melosira islandica</i> MÜll.		+*	+*x		+*			+*				+
<i>Melosira italica</i>				+x	+	+*						+
<i>Navicula</i> sp.		+*	x	*					x			
<b>Euglenophyta</b>												
Euglenophyceae (C)												
<i>Trachelomonas</i> sp.			+	+	+	+	+	+*	+	+	+	+
<b>Chlorophyta</b>												
Chlorophyceae (C)												
<i>Chlorococcum</i> sp.	+	+*	+*	+	+	+	+	+	+	+	+	+*
<i>Cylindrocapsa geminella</i>			+									
<i>Pediastrum simplex</i>			*									+
<i>Schroederia setigera</i>					+							
<i>Ankistrodesmus</i> sp.				+		+		+*	x			
<i>Treubaria crassispina</i>				+								
<i>Crucigenia</i> sp.	+*	+*	+*x	+*	+*	+	+	+	+x	+	+	+*
<i>Scenedesmus</i> sp.		+*	+*	+		+			+			+
Trebouxiophyceae (C)												
<i>Chlorella</i> sp.	+*x	+*x	+*x	+*x	+*x	+*x	+*x	+*x	+*x	*	+*	+x
<i>Lagerheimia</i> sp.			+			+		+	+	+	+	
<i>Oocystis</i> sp.	+*	+*	+*	*	+	+	+	+		+	+	+
Zygnematophyceae (C)												
<i>Cosmarium</i> sp.					+	+		+		+	*	+
<i>Staurastrum</i> sp.		+*	+*	+	+	+*		+	+			
<b>Cyanophyta</b>												
Cyanophyceae (C)												
<i>Chroococcus</i> sp.	+*	+*	+*x	+*x	+*x	+	+*	+	+x	+*	+*x	+*
<i>Anabaena circinalis</i>					+	+	+			+	+	+*
<i>Lyngbya</i> sp.		+	+*	+	+*x	+		+				
<i>Merismopedia</i> sp.							+	*				
<i>Synechocystis</i> sp.	+*x	+*x	+*x	+*x	+*x	+*	+*	+*x	+*x	+*x	+*x	+*x

Table 1: The phytoplankton of different algal groups in Angat Hydroelectric Dam water layers<sup>1)</sup>  
<sup>1)</sup>Note: C, Class, + surface, \* middle, X bottom

Phytoplankton Group	Cell Density (x 10 <sup>3</sup> cells/ml) Surface	Cell Density (x 10 <sup>3</sup> cells/ml) Middle	Cell Density (x 10 <sup>3</sup> cells/ml) Bottom	Total cell density/species (x 10 <sup>3</sup> cells/ml)
<b>Bacillariophyta</b>				
<i>Fragilaria crotonensis</i>	0.150	0.167	0.083	0.400
<i>Melosira granulata</i> var. <i>angustissima</i> f. <i>spiralis</i> Hust	0.066	-	0.066	0.133
<i>Melosira granulata</i> var. <i>angustissima</i> MÜll.	0.075	0.566	-	0.642
<i>Melosira islandica</i> MÜll.	0.541	0.416	0.066	1.025
<i>Melosira italica</i>	0.541	0.033	0.016	0.591
<i>Navicula</i> sp.	0.033	0.033	0.050	0.116
<i>Synedra ulna</i>	0.266	6.633	-	6.90
<b>Total</b>	<b>1.675</b>	<b>7.850</b>	<b>0.283</b>	<b>9.808</b>
<b>Euglenophyta</b>				
<i>Trachelomonas</i> sp.	1.608	0.0167	-	1.6247
<b>Total</b>	<b>1.608</b>	<b>0.0167</b>	-	<b>1.6247</b>
<b>Chlorophyta</b>				
<i>Ankistrodesmus</i> sp.	0.2167	0.1166	-0.050	0.383
<i>Chlorella</i> sp.	29.483	39.917	29.858	99.258
<i>Chlorococcum</i> sp.	1.100	0.125	-	1.225
<i>Cosmarium</i> sp.	0.225	0.033	-	0.258
<i>Crucigenia</i> sp.	2.867	0.917	0.133	3.917
<i>Cylindrocapsa geminella</i>	0.0667	-	-	0.0667
<i>Lagerheimia</i> sp.	0.633	-	-	0.633
<i>Oocystis</i> sp.	2.783	0.733	-	3.517
<i>Pediastrum simplex</i>	0.100	0.033	-	0.133
<i>Scenedesmus</i> sp.	0.808	0.133	-	0.942
<i>Schroederia setigera</i>	0.033	-	-	0.0330
<i>Staurastrum</i> sp.	0.717	0.150	-	0.866
<i>Treubaria crassispina</i>	0.033	-	-	0.033
<b>Total</b>	<b>39.066</b>	<b>42.158</b>	<b>30.041</b>	<b>111.266</b>
<b>Cyanophyta</b>				
<i>Anabaena circinalis</i>	1.083	0.025	-	1.108
<i>Chroococcus</i> sp.	14.725	2.333	0.283	17.341
<i>Lyngbya</i> sp.	1.783	0.700	0.100	2.583
<i>Merismopedia</i> sp.	0.133	0.066	-	0.200
<i>Synechocystis</i> sp.	36.375	49.075	16.975	102.425
<b>Total</b>	<b>54.100</b>	<b>52.200</b>	<b>17.358</b>	<b>123.658</b>

Table 2: Cell density of phytoplankton species in AHD in the different water layers  
(-) not detected

Parameters	Average	Minimum	Maximum
Depth (m)	35.52	0.70	84.3
Water Temp (°C)	25.25	22.97	31.19
Water Conductivity (µS/cm)	172.38	132.14	507.64
Salinity (psu)	0.08	0.06	0.25
Total Dissolved Solids (mg/L <sup>-1</sup> )	111.70	87.50	342.61
Dissolved Oxygen (mg/L <sup>-1</sup> )	2.82	0.03	8.20
pH	5.80	3.68	8.69
Nitrate (mg L <sup>-1</sup> )	0.38	0.28	0.62
Phosphate (mg L <sup>-1</sup> )	2.63	0.51	9.25

Table 3: Limnological characteristics of water in Angat Hydroelectric Dam over period of study (June 2018-May 2019)

	Cell density (cells/ml)	Temp °C	Cond µS/cm	Sal psu	TDS mg/L	ODO mg/L	pH	Depth m	NO <sub>3</sub> mg/L <sup>-1</sup>	PO <sub>4</sub> (mg/L <sup>-3</sup> )
Cell density (cells/ml)	1									
Temp °C	0.67*	1								
Cond µS/cm	-1.00	-0.67	1							
Sal psu	-0.99	-0.74	0.99*	1						
TDS mg/L	-0.99	-0.77	0.99	0.99	1					
ODO mg/L	0.53*	0.96	-0.43	-0.52	-0.55*	1				
pH	-0.47	-0.97	0.46*	0.55	0.58	-1.00	1			
Depth m	-0.82*	-0.98	0.82	0.87	0.89*	-0.87*	0.89	1		
Nitrate (mg/L <sup>-1</sup> )	0.10	-0.67	-0.10	0.01	0.03	-0.85	0.83	0.49	1	
Phosphate (mg/L <sup>-1</sup> )	0.41	0.95*	-0.41	-0.50	-0.53	1.00	-1.00	-0.86	-0.87	1

Table 4: The correlation of the physico-chemical parameters of the water in AHD with the phytoplankton cell density. Correlation analysis results are at  $p < 0.05$ , 2 sig-tailed  $n = 108$ . Value in \* are significant using regression