

Okehampton Bay Independent Validation of Industry Data from August 2017 to December 2019

April 2020



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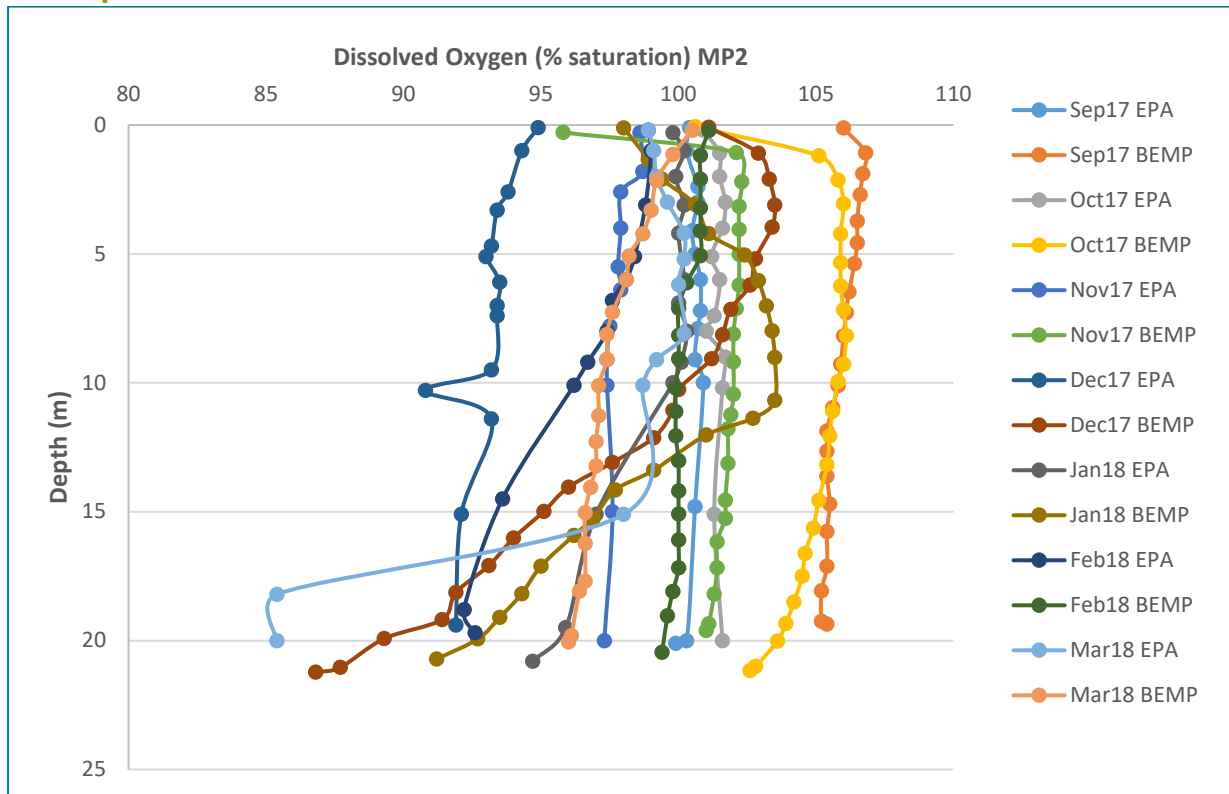
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Introduction

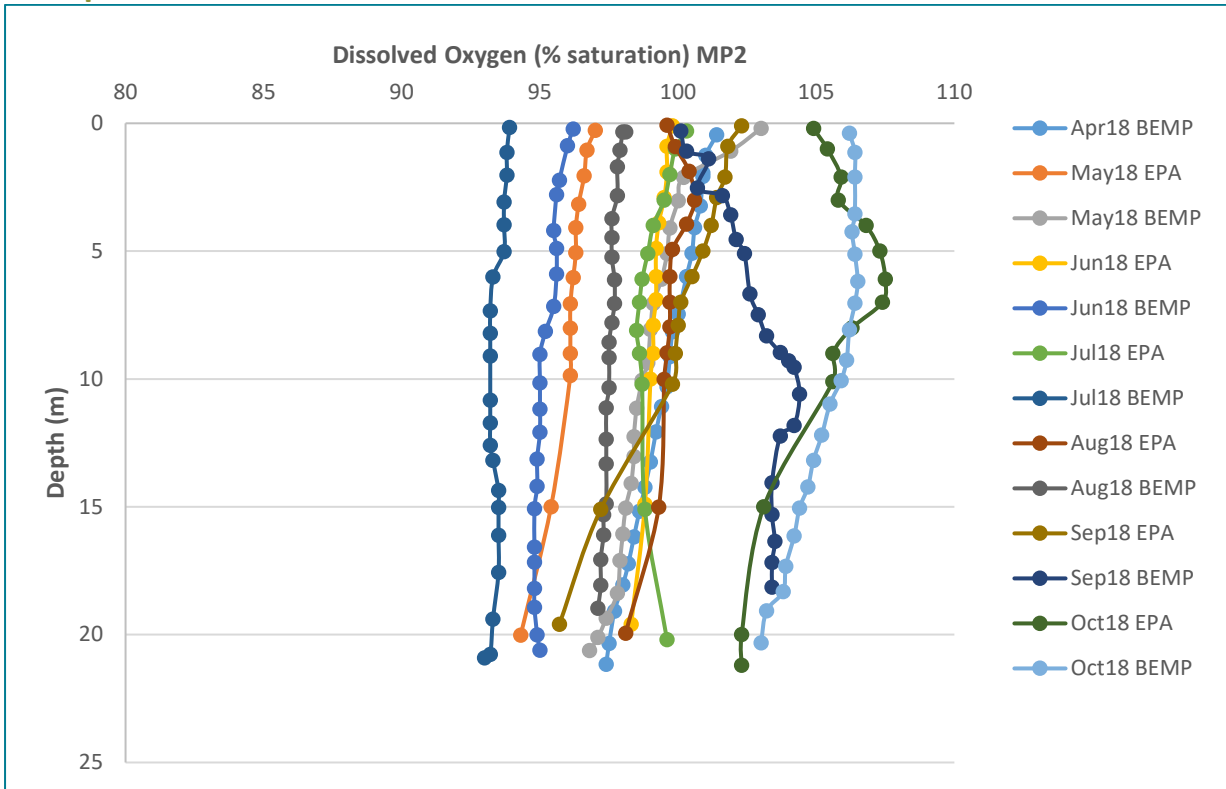
This document presents the physico-chemical and nutrient data collected under the EPA monitoring program (EPA) and under the Broadscale Environmental Monitoring Program (BEMP) scheduled in Environmental Licence 9852. The document provides the basis for which water quality information collected under the EPA and BEMP programs can be compared on a monthly and seasonal basis. The information provided is for the compliance site within Okehampton Bay. The data covers the period from September 2017 to December 2019.

1. Dissolved Oxygen

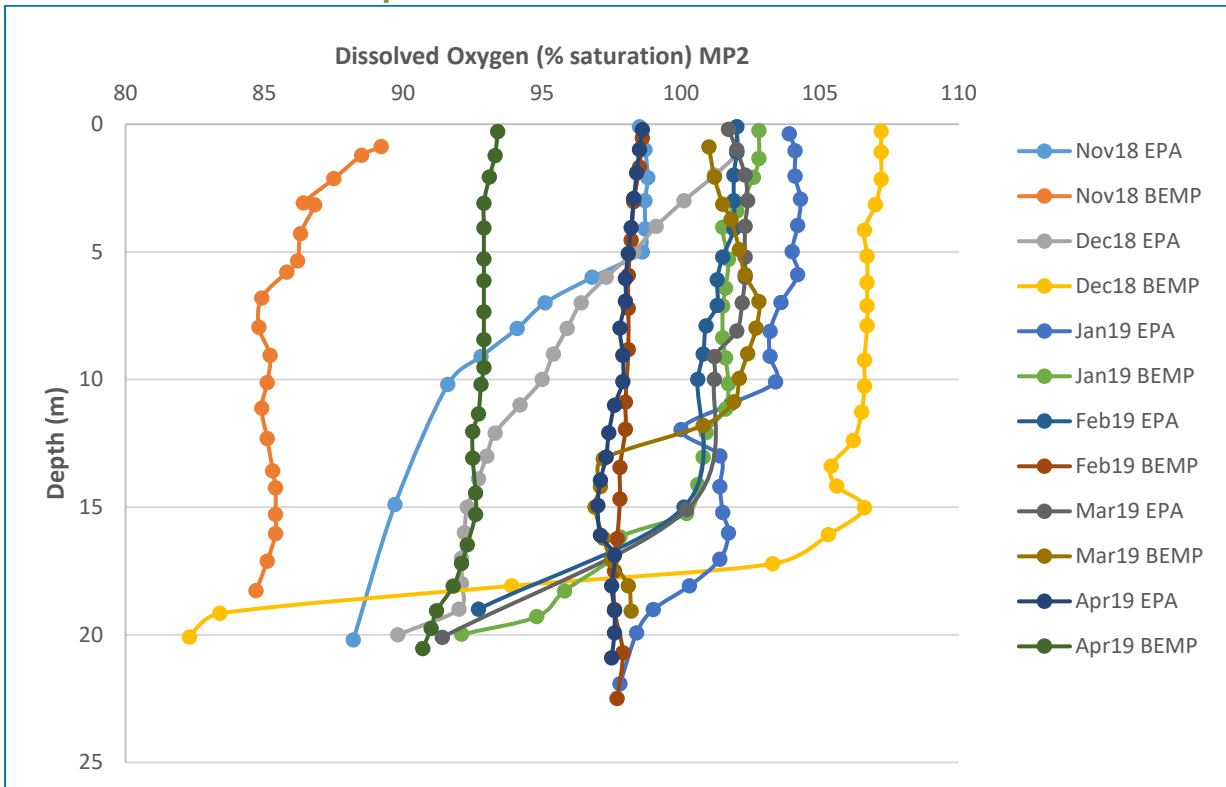
1.1 September 2017 to March 2018



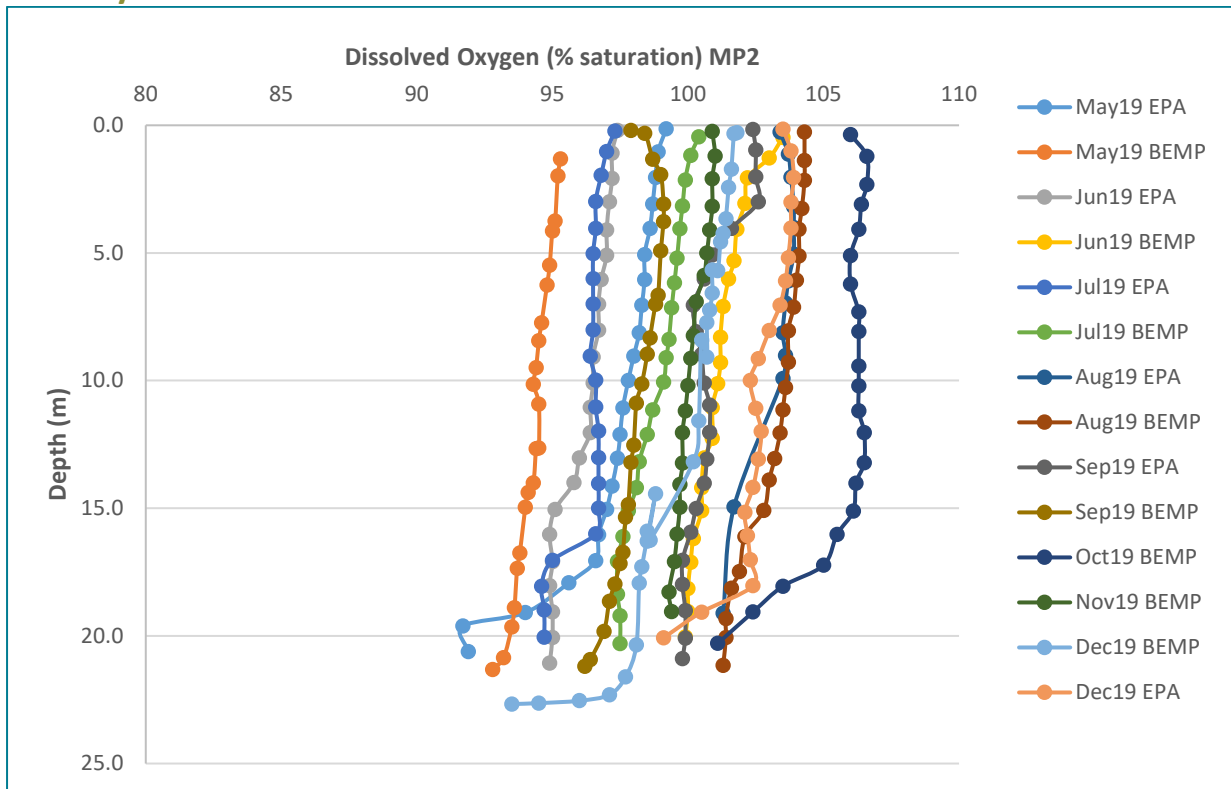
1.2 April 2018 to October 2018



1.3 November 2018 to April 2019

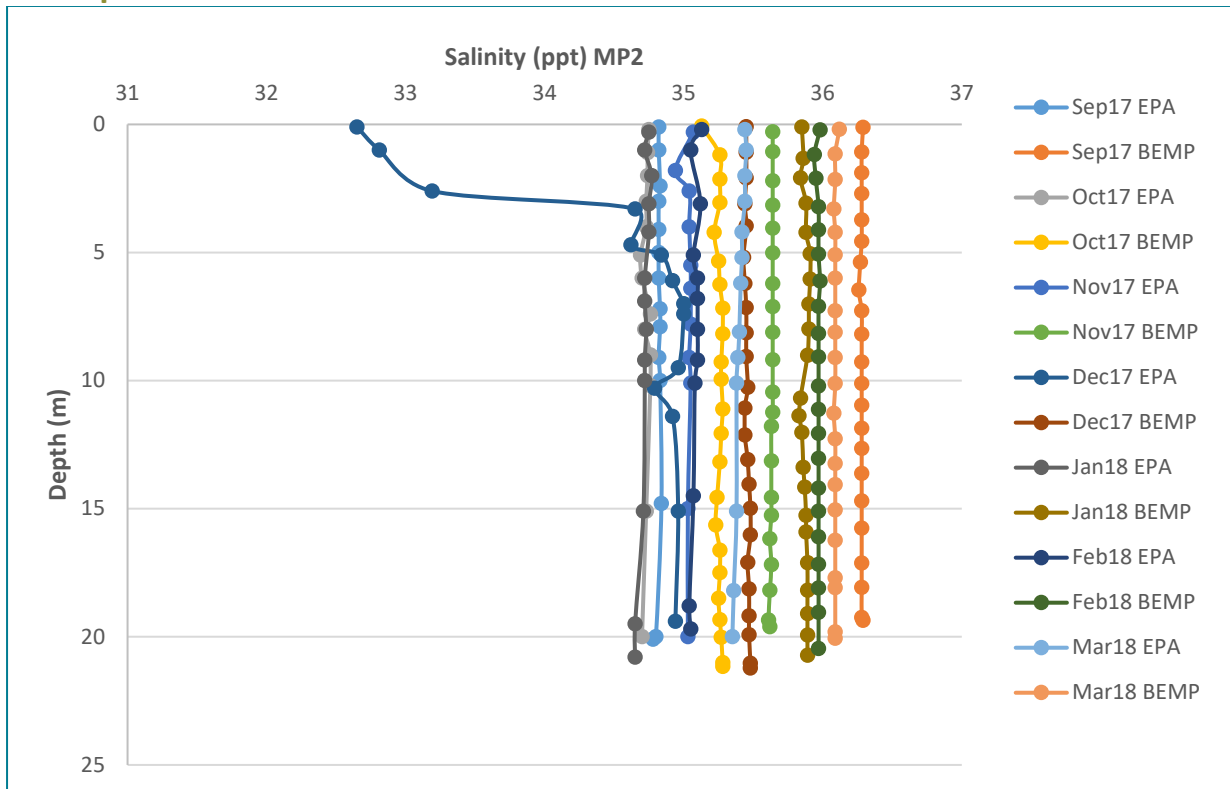


1.4 May 2019 to December 2019

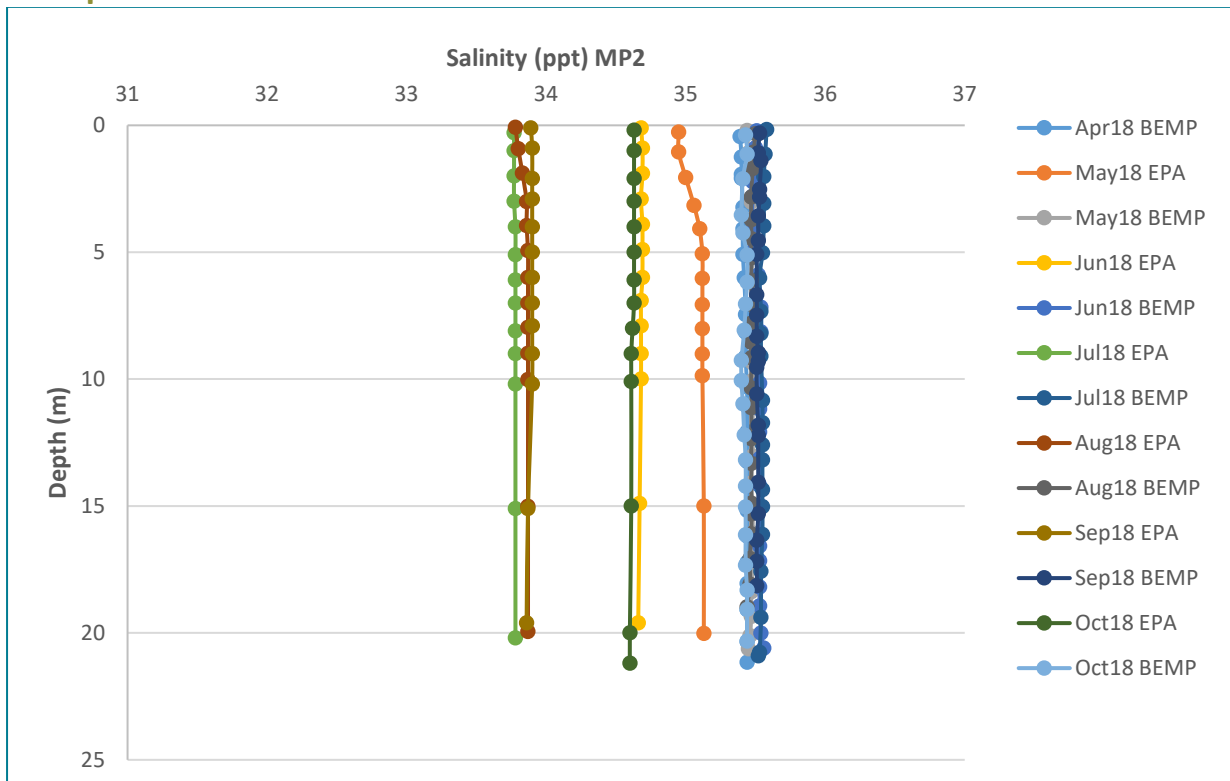


2. Salinity

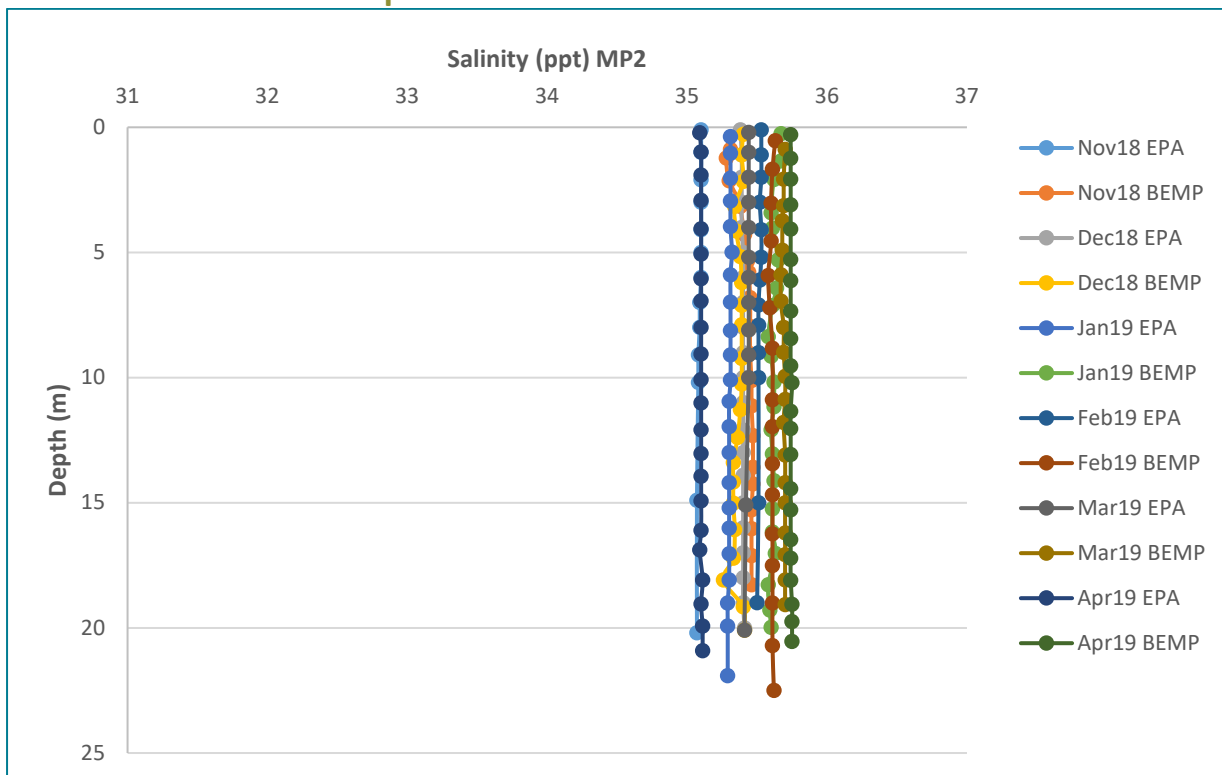
2.1 September 2017 to March 2018



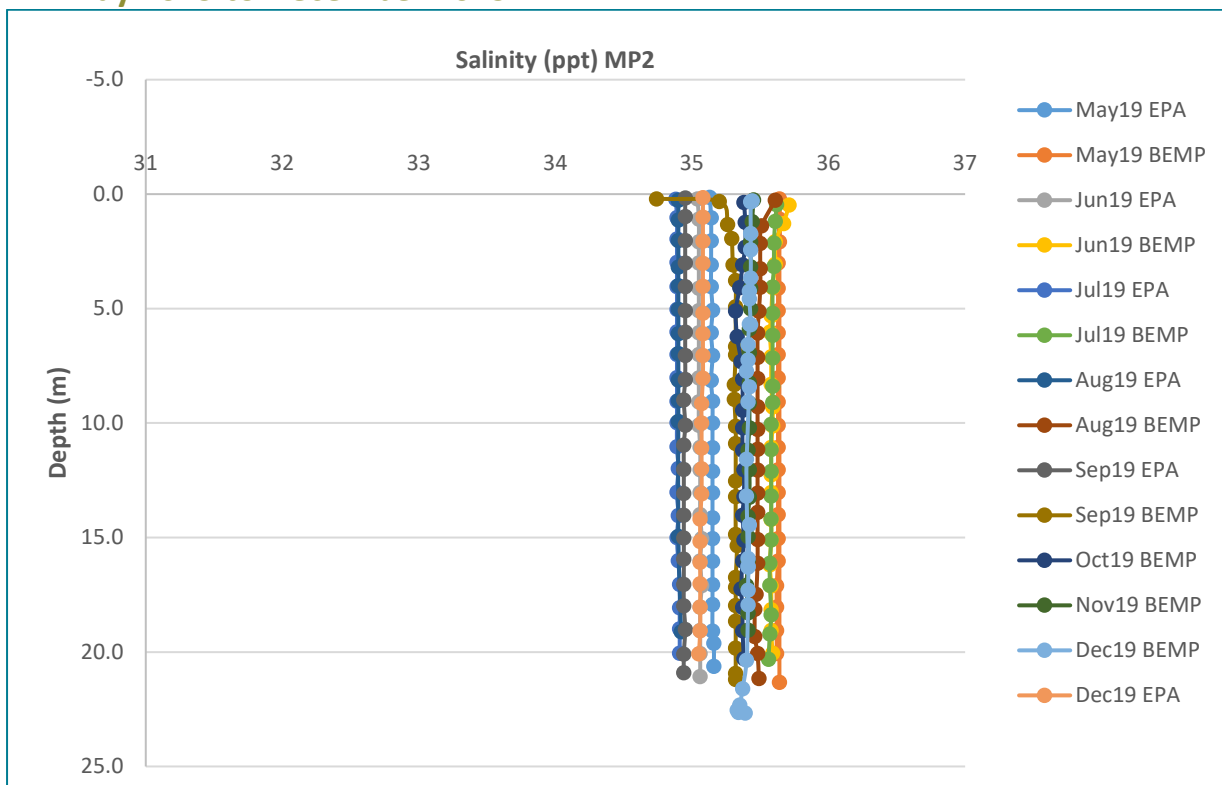
2.2 April 2018 to October 2018



2.3 November 2018 to April 2019

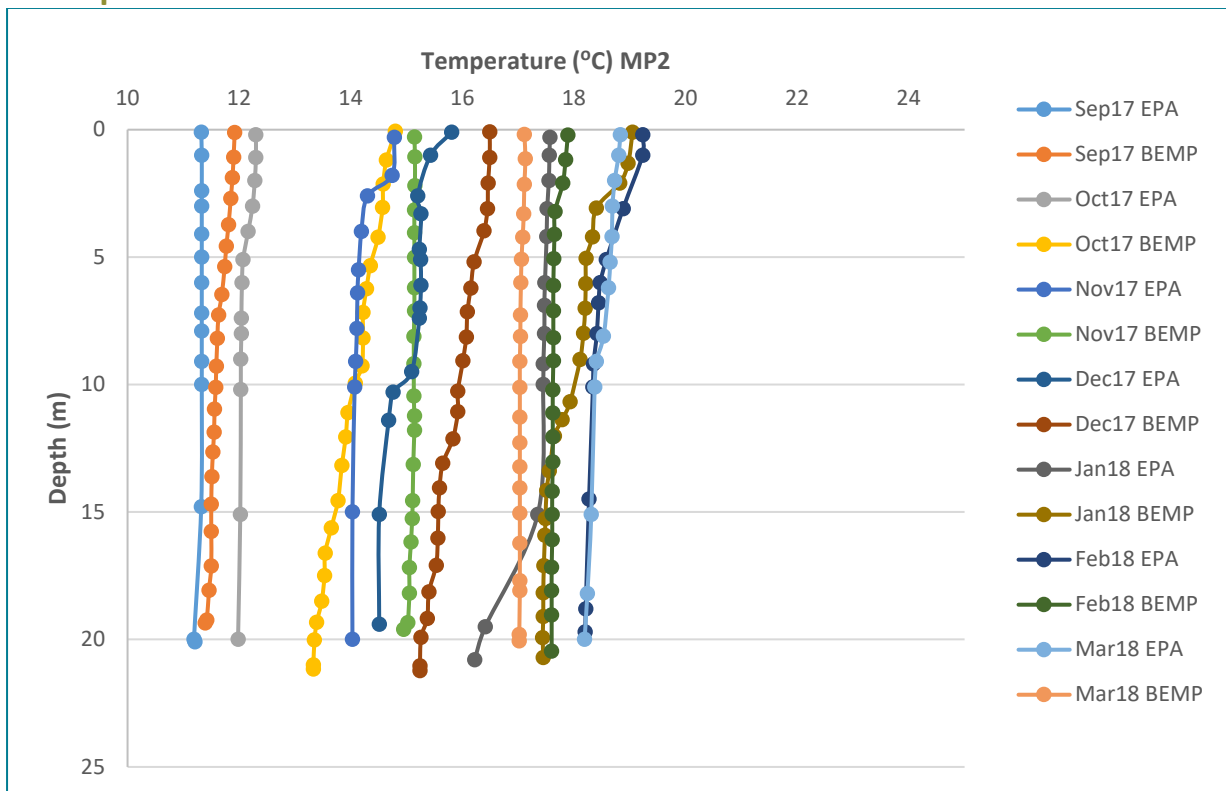


2.4 May 2019 to December 2019

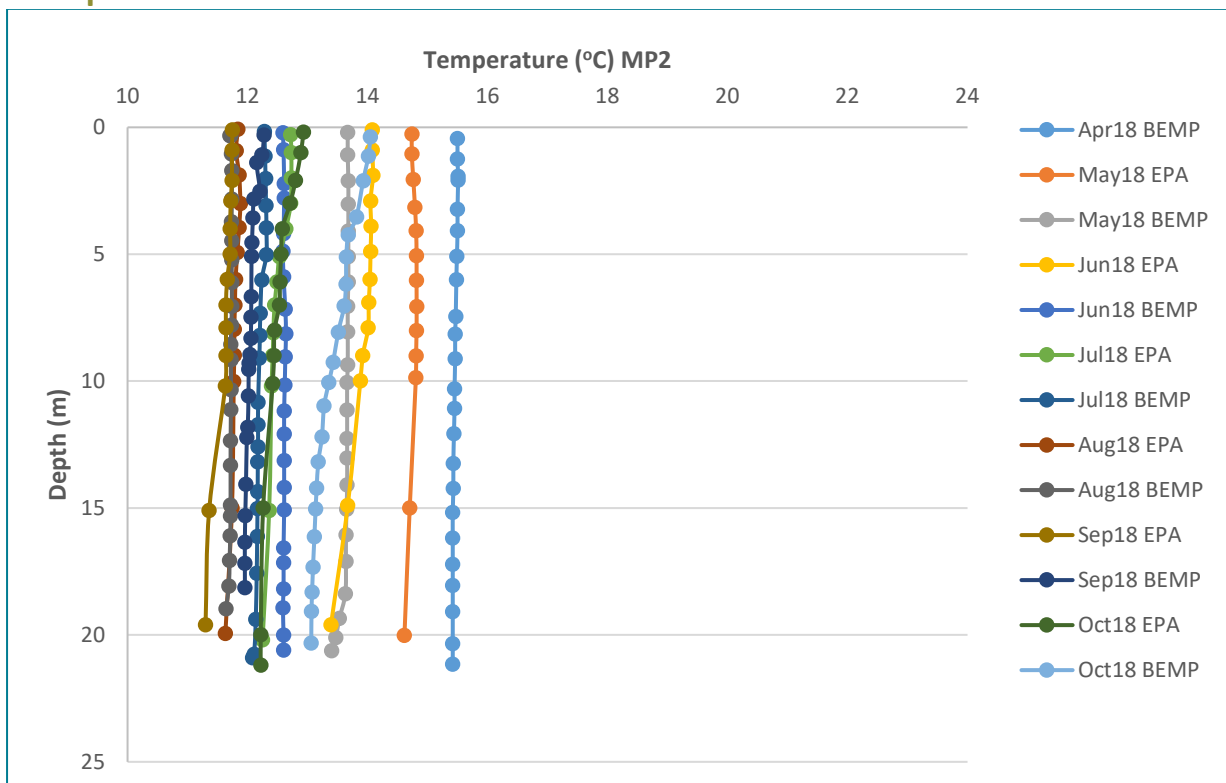


3. Temperature

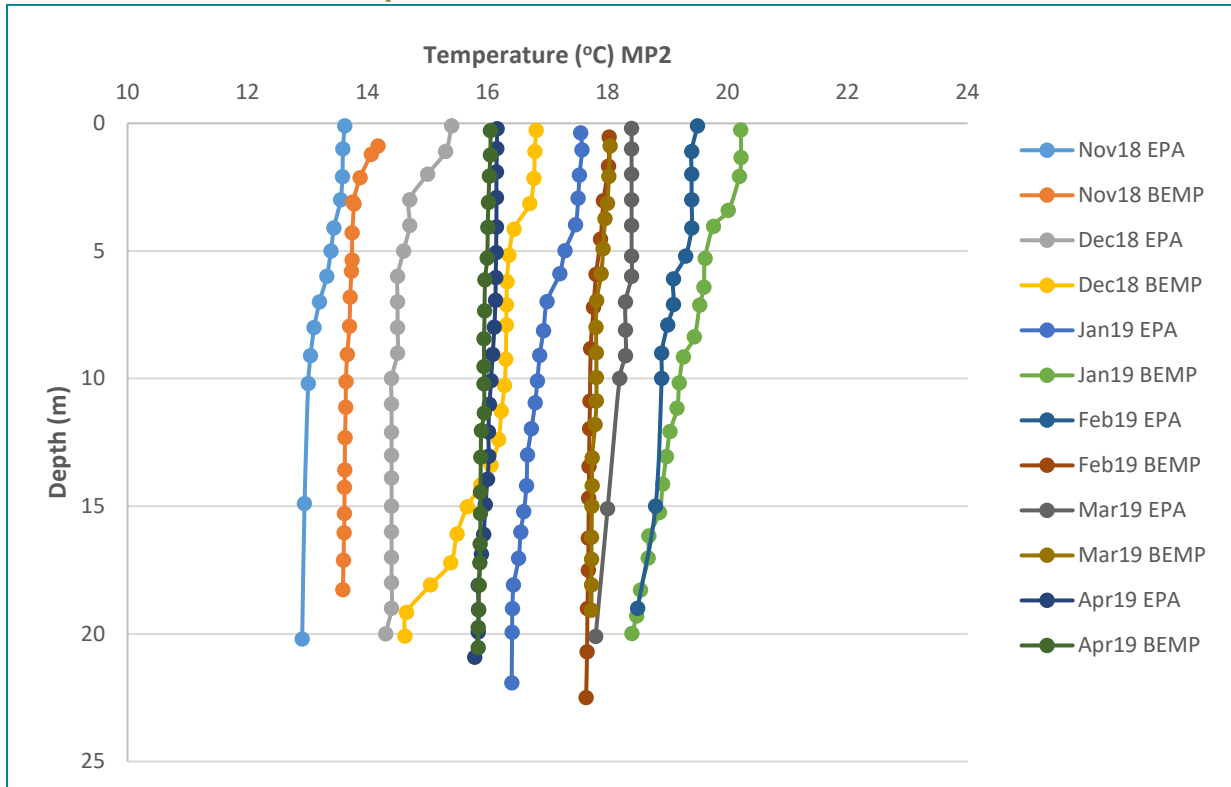
3.1 September 2017 to March 2018



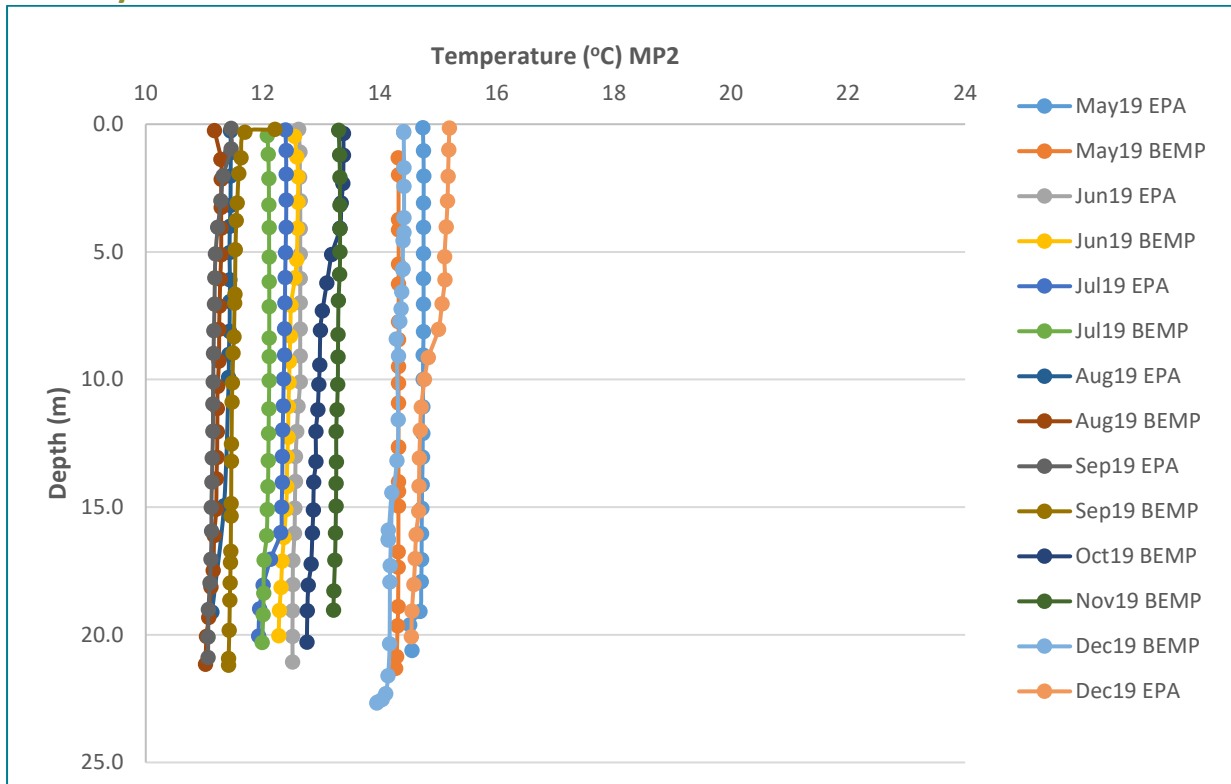
3.2 April 2018 to October 2018



3.3 November 2018 to April 2019



3.4 May 2019 to December 2019



4. Nutrients

4.1 September 2017 to December 2017

Okehampton Bay MP 2		TAN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Dissolved Reactive (mg/L)	Phosphorus Total (mg/L)	Silica, Molybdate Reactive (mg/L)	Chla (mg/m3)
EPA 7/09/17	Surface	<0.005	0.33	0.006	0.02	<0.1	
	10m	<0.005	0.34	0.006	0.02	<0.1	
	Bottom	0.005	0.34	0.006	0.02	<0.1	
	Int (12m)						1.0
BEMP 26/09/17	Surface	<0.005	0.29	0.005	0.03	<0.1	
	10m	<0.005	0.28	0.005	0.03	<0.1	
	Bottom	<0.005	0.33	0.005	0.03	<0.1	
	Int (12m)						1.4
EPA 3/10/17	Surface	<0.005	0.32	0.005	0.03	0.1	
	10m	<0.005	0.31	0.006	0.04	0.1	
	Bottom	<0.005	0.31	0.006	0.04	0.1	
	Int (12m)						0.7
BEMP 26/10/17	Surface	0.005	0.29	<0.003	0.03	0.1	
	10m	<0.005	0.30	0.003	0.03	0.1	
	Bottom	<0.005	0.29	0.005	0.03	0.1	
	Int (12m)						0.7
EPA 8/11/17	Surface	<0.005	0.44	0.007	0.03	0.1	
	10m	<0.005	0.32	0.007	0.03	0.1	
	Bottom	<0.005	0.31	0.007	0.03	0.1	
	Int (12m)						0.7
BEMP 16/11/17	Surface	0.005	0.30	0.008	0.04	0.1	
	10m	0.005	0.27	0.008	0.04	0.1	
	Bottom	<0.005	0.32	0.008	0.05	0.1	
	Int (12m)						1.0
EPA 5/12/17	Surface	0.008	0.40	0.006	0.04	1.0	
	10m	0.012	0.33	0.006	0.04	0.2	
	Bottom	0.016	0.33	0.008	0.05	0.2	
	Int (12m)						1.4
BEMP 19/12/17	Surface	0.006	0.30	0.004	0.04	<0.1	
	10m	0.005	0.31	0.005	0.04	<0.1	
	Bottom	0.009	0.31	0.008	0.04	<0.1	
	Int (12m)						<0.5

< = below limit of reporting, TAN = Total Ammonia Nitrogen, Chla = Chlorophyll a

4.2 January 2018 to April 2018

Okehampton Bay MP 2		TAN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Dissolved Reactive (mg/L)	Phosphorus Total (mg/L)	Silica, Molybdate Reactive (mg/L)	Chla (mg/m3)
EPA 3/01/18	Surface	<0.005	0.28	0.006	0.04	0.1	
	10m	<0.005	0.36	0.006	0.04	0.1	
	Bottom	<0.005	0.28	0.008	0.04	0.2	
	Int (12m)						0.7
BEMP 22/01/18	Surface	0.012	0.37	0.004	0.03	<0.1	
	10m	0.006	0.30	0.003	0.03	<0.1	
	Bottom	0.005	0.33	0.007	0.04	<0.1	
	Int (12m)						0.5
EPA 8/02/18	Surface	0.006	0.32	0.005	0.03	0.1	
	10m	<0.005	0.31	0.006	0.04	0.1	
	Bottom	0.009	0.32	0.008	0.04	0.1	
	Int (12m)						0.9
BEMP 22/02/18	Surface	0.005	0.27	0.005	0.03	<0.1	
	10m	0.005	0.29	0.004	0.03	<0.1	
	Bottom	<0.005	0.28	0.005	0.03	<0.1	
	Int (12m)						1.5
EPA 8/03/18	Surface	0.007	0.32	0.005	0.03	0.1	
	10m	0.006	0.31	0.005	0.03	0.1	
	Bottom	0.005	0.30	0.006	0.03	0.1	
	Int (12m)						1.4
BEMP 28/03/18	Surface	<0.005	0.32	0.007	0.03	<0.1	
	10m	0.006	0.30	0.008	0.04	<0.1	
	Bottom	<0.005	0.31	0.008	0.03	<0.1	
	Int (12m)						2.0
BEMP 30/04/18	Surface	0.013	0.34	0.009	0.03	0.1	
	10m	0.015	0.33	0.010	0.04	0.1	
	Bottom	0.018	0.33	0.010	0.04	0.1	
	Int (12m)						<0.5

< = below limit of reporting, TAN = Total Ammonia Nitrogen, Chla = Chlorophyll a

4.3 May 2018 to August 2018

Okehampton Bay MP 2		TAN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Dissolved Reactive (mg/L)	Phosphorus Total (mg/L)	Silica, Molybdate Reactive (mg/L)	Chla (mg/m3)
EPA 10/05/18	Surface	0.022	0.32	0.009	0.04	0.1	
	10m	0.017	0.32	0.008	0.04	0.1	
	Bottom	0.015	0.33	0.009	0.04	0.1	
	Int (12m)						0.9
BEMP 30/05/18	Surface	0.016	0.32	0.011	0.04	0.2	
	10m	0.012	0.30	0.009	0.04	0.2	
	Bottom	0.013	0.31	0.009	0.04	0.2	
	Int (12m)						0.8
EPA 5/06/18	Surface	<0.005	0.29	0.009	0.04	0.1	
	10m	0.006	0.30	0.008	0.04	0.1	
	Bottom	0.006	0.30	0.009	0.04	0.1	
	Int (12m)						1.2
BEMP 21/06/18	Surface	<0.005	0.33	0.011	0.04	0.2	
	10m	<0.005	0.34	0.010	0.04	0.2	
	Bottom	<0.005	0.32	0.011	0.04	0.1	
	Int (12m)						1.6
EPA 2/07/18	Surface	0.007	0.34	0.012	0.04	<0.1	
	10m	0.010	0.34	0.012	0.04	<0.1	
	Bottom	0.007	0.34	0.010	0.04	<0.1	
	Int (12m)						0.9
BEMP 18/07/18	Surface	0.009	0.34	0.013	0.05	0.1	
	10m	0.009	0.30	0.013	0.05	0.1	
	Bottom	0.008	0.29	0.013	0.04	0.1	
	Int (12m)						0.7
EPA 6/08/18	Surface	0.009	0.29	0.009	0.04	<0.1	
	10m	0.008	0.29	0.009	0.05	<0.1	
	Bottom	0.005	0.28	0.008	0.04	<0.1	
	Int (12m)						1.5
BEMP 28/08/18	Surface	0.009	0.29	0.010	0.05	<0.1	
	10m	<0.005	0.26	0.010	0.05	<0.1	
	Bottom	0.006	0.27	0.010	0.05	<0.1	
	Int (12m)						1.1

< = below limit of reporting, TAN = Total Ammonia Nitrogen, Chla = Chlorophyll a

4.4 September 2018 to December 2018

Okehampton Bay MP 2		TAN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Dissolved Reactive (mg/L)	Phosphorus Total (mg/L)	Silica, Molybdate Reactive (mg/L)	Chla (mg/m3)
EPA 4/09/18	Surface	0.010	0.30	0.011	0.05	0.1	
	10m	0.010	0.36	0.011	0.05	0.1	
	Bottom	0.015	0.32	0.011	0.05	0.1	
	Int (12m)						0.9
BEMP 24/09/18	Surface	0.008	0.26	0.007	0.03	<0.1	
	10m	<0.005	0.27	0.006	0.03	<0.1	
	Bottom	<0.005	0.30	0.006	0.04	<0.1	
	Int (12m)						0.5
EPA 2/10/18	Surface	<0.005	0.27	0.007	0.03	<0.1	
	10m	<0.005	0.29	0.007	0.02	<0.1	
	Bottom	<0.005	0.30	0.006	0.02	<0.1	
	Int (12m)						0.6
BEMP 17/10/18	Surface	0.012	0.27	0.009	0.02	<0.1	
	10m	<0.005	0.26	0.008	0.02	<0.1	
	Bottom	<0.005	0.26	0.007	0.02	<0.1	
	Int (12m)						1.0
EPA 6/11/18	Surface	<0.005	0.28	0.004	0.02	<0.1	
	10m	0.006	0.28	0.007	0.02	<0.1	
	Bottom	0.011	0.25	0.008	0.02	<0.1	
	Int (12m)						1.9
BEMP 21/11/18	Surface	0.013	0.28	0.008	0.02	0.1	
	10m	0.025	0.27	0.008	0.02	0.1	
	Bottom	0.014	0.26	0.007	0.02	0.2	
	Int (12m)						0.9
EPA 7/12/18	Surface	<0.005	0.23*	0.004	0.02*	<0.1	
	10m	<0.005	0.25*	0.004	0.02*	0.1	
	Bottom	<0.005	0.27*	0.005	0.03*	0.1	
	Int (12m)						2.8
BEMP 10/12/18	Surface	<0.005	0.25	0.004	0.02	<0.1	
	10m	<0.005	0.24	0.004	0.02	<0.1	
	Bottom	<0.005	0.26	0.005	0.02	<0.1	
	Int (12m)						0.8

< = below limit of reporting, TAN = Total Ammonia Nitrogen, , Chla = Chlorophyll a * = sample holding time could not be assessed at time of testing and this should be taken to account when interpreting results (assessment made against AS/NZS 5667).

4.5 January 2019 to April 2019

Okehampton Bay MP 2		TAN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Dissolved Reactive (mg/L)	Phosphorus Total (mg/L)	Silica, Molybdate Reactive (mg/L)	Chla (mg/m3)
EPA 3/01/19	Surface	<0.005	0.25	0.004	0.02	<0.1	
	10m	<0.005	0.27	0.005	0.03	<0.1	
	Bottom	<0.005	0.26	0.005	0.03	<0.1	
	Int (12m)						1.8
BEMP 20/01/19	Surface	0.012	0.24	0.006	0.02	<0.1	
	10m	<0.005	0.23	0.004	0.02	<0.1	
	Bottom	<0.005	0.24	0.006	0.02	<0.1	
	Int (12m)						0.9
EPA 4/02/19	Surface	<0.005	0.24	0.004	0.02	<0.1	
	10m	<0.005	0.22	0.004	0.02	<0.1	
	Bottom	<0.005	0.22	0.006	0.02	<0.1	
	Int (12m)						0.9
BEMP 15/02/19	Surface	<0.005	0.24	0.005	0.02	<0.1	
	10m	<0.005	0.25	0.005	0.02	<0.1	
	Bottom	<0.005	0.24	0.004	0.02	<0.1	
	Int (12m)						1.1
EPA 4/03/19	Surface	<0.005	0.24	0.005	0.02	<0.1	
	10m	<0.005	0.28	0.004	0.02	<0.1	
	Bottom	<0.005	0.23	0.005	0.02	<0.1	
	Int (12m)						1.0
BEMP 19/03/19	Surface	<0.005	0.26	0.006	0.02	<0.1	
	10m	<0.005	0.30	0.007	0.03	<0.1	
	Bottom	<0.005	0.29	0.006	0.02	<0.1	
	Int (12m)						1.8
EPA 10/04/19	Surface	<0.005	0.30	0.006	0.02	<0.1	
	10m	<0.005	0.31	0.006	0.03	<0.1	
	Bottom	<0.005	0.28	0.006	0.03	<0.1	
	Int (12m)						1.1
BEMP 16/04/19	Surface	0.009	0.27	0.009	0.02	0.1	
	10m	0.010	0.26	0.009	0.02	0.1	
	Bottom	0.009	0.31	0.009	0.02	0.1	
	Int (12m)						0.8

< = below limit of reporting, TAN = Total Ammonia Nitrogen, Chla = Chlorophyll a

4.6 May 2019 to August 2019

Okehampton Bay MP 2		TAN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Dissolved Reactive (mg/L)	Phosphorus Total (mg/L)	Silica, Molybdate Reactive (mg/L)	Chla (mg/m3)
EPA 7/05/19	Surface	0.007	0.27	0.006	0.03	0.1	
	10m	<0.005	0.27	0.006	0.02	0.1	
	Bottom	<0.005	0.28	0.007	0.03	0.1	
	Int (12m)						0.9
BEMP 23/05/19	Surface	0.009	0.28	0.007	0.02	0.1	
	10m	0.009	0.29	0.018	0.02	0.1	
	Bottom	0.012	0.28	0.009	0.02	0.1	
	Int (12m)						<0.5
EPA 7/06/19	Surface	0.008	0.30	0.009	0.02	0.1	
	10m	0.005	0.28	0.008	0.02	0.1	
	Bottom	0.005	0.28	0.007	0.02	0.1	
	Int (12m)						1.0
BEMP 26/06/19	Surface	<0.005	0.31	0.010	0.02	<0.1	
	10m	<0.005	0.32	0.010	0.02	<0.1	
	Bottom	<0.005	0.32	0.010	0.02	0.1	
	Int (12m)						0.9
EPA 4/07/19	Surface	0.016	0.32	0.013	0.03	0.1	
	10m	0.013	0.31	0.012	0.03	0.1	
	Bottom	0.013	0.29	0.012	0.03	0.1	
	Int (12m)						0.6
BEMP 24/07/19	Surface	0.007	0.28	0.011	0.03	<0.1	
	10m	0.009	0.28	0.011	0.03	<0.1	
	Bottom	0.009	0.28	0.011	0.03	<0.1	
	Int (12m)						0.9
EPA 7/08/19	Surface	<0.005	0.26	0.005	0.02	<0.1	
	10m	<0.005	0.26	0.006	0.02	<0.1	
	Bottom	<0.005	0.26	0.006	0.02	<0.1	
	Int (12m)						2.7
BEMP 23/08/19	Surface	<0.005	0.26	0.006	0.024	<0.1	
	10m	<0.005	0.29	0.006	0.022	<0.1	
	Bottom	<0.005	0.29	0.007	0.023	<0.1	
	Int (12m)						2.0

< = below limit of reporting, TAN = Total Ammonia Nitrogen, Chla = Chlorophyll a

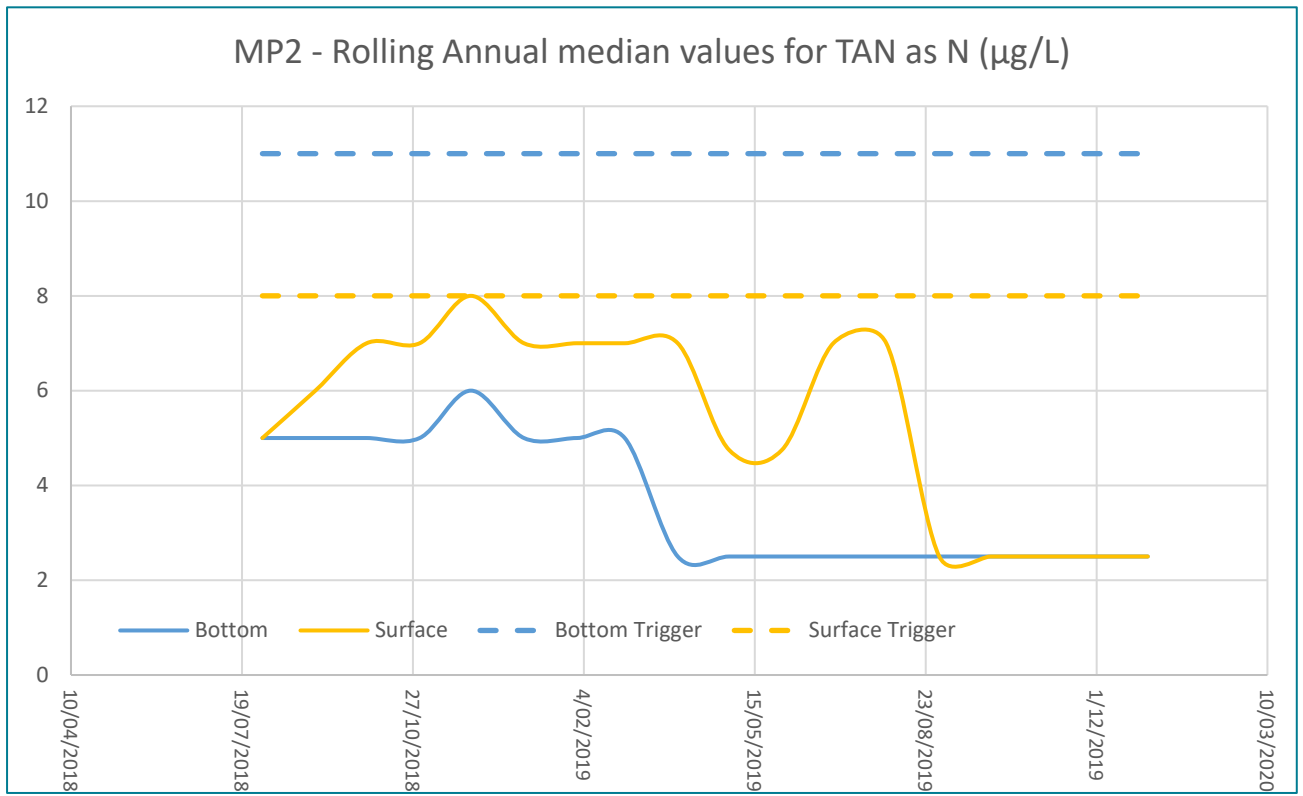
4.7 September 2019 to December 2019

Okehampton Bay MP 2		TAN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Dissolved Reactive (mg/L)	Phosphorus Total (mg/L)	Silica, Molybdate Reactive (mg/L)	Chla (mg/m3)
EPA 3/09/19	Surface	<0.005	0.24	0.004	0.020	<0.1	
	10m	0.005	0.25	0.004	0.024	<0.1	
	Bottom	<0.005	0.23	0.004	0.019	0.1	
	Int (12m)						1.2
BEMP 19/09/19	Surface	0.009	0.29	0.009	0.025	<0.1	
	10m	0.010	0.28	0.009	0.027	<0.1	
	Bottom	0.010	0.27	0.009	0.027	<0.1	
	Int (12m)						2.3
BEMP 22/10/19	Surface	<0.005	0.28	0.007	0.028	<0.1	
	10m	<0.005	0.26	0.007	0.028	<0.1	
	Bottom	<0.005	0.28	0.007	0.026	<0.1	
	Int (12m)						1.6
BEMP 12/11/19	Surface	0.008	0.27	0.009	0.028	0.1	
	10m	0.010	0.28	0.008	0.028	0.1	
	Bottom	0.012	0.31	0.009	0.030	0.1	
	Int (12m)						0.8
BEMP 12/12/19	Surface	0.007	0.26	0.007	0.029	<0.1	
	10m	0.005	0.25	0.007	0.030	<0.1	
	Bottom	0.008	0.30	0.007	0.031	<0.1	
	Int (12m)						<0.5
EPA 18/12/19	Surface	<0.005	0.21	0.004	0.031	<0.1	
	10m	0.007	0.22	0.004	0.033	<0.1	
	Bottom	0.005	0.20	0.004	0.031	<0.1	
	Int (12m)						0.7

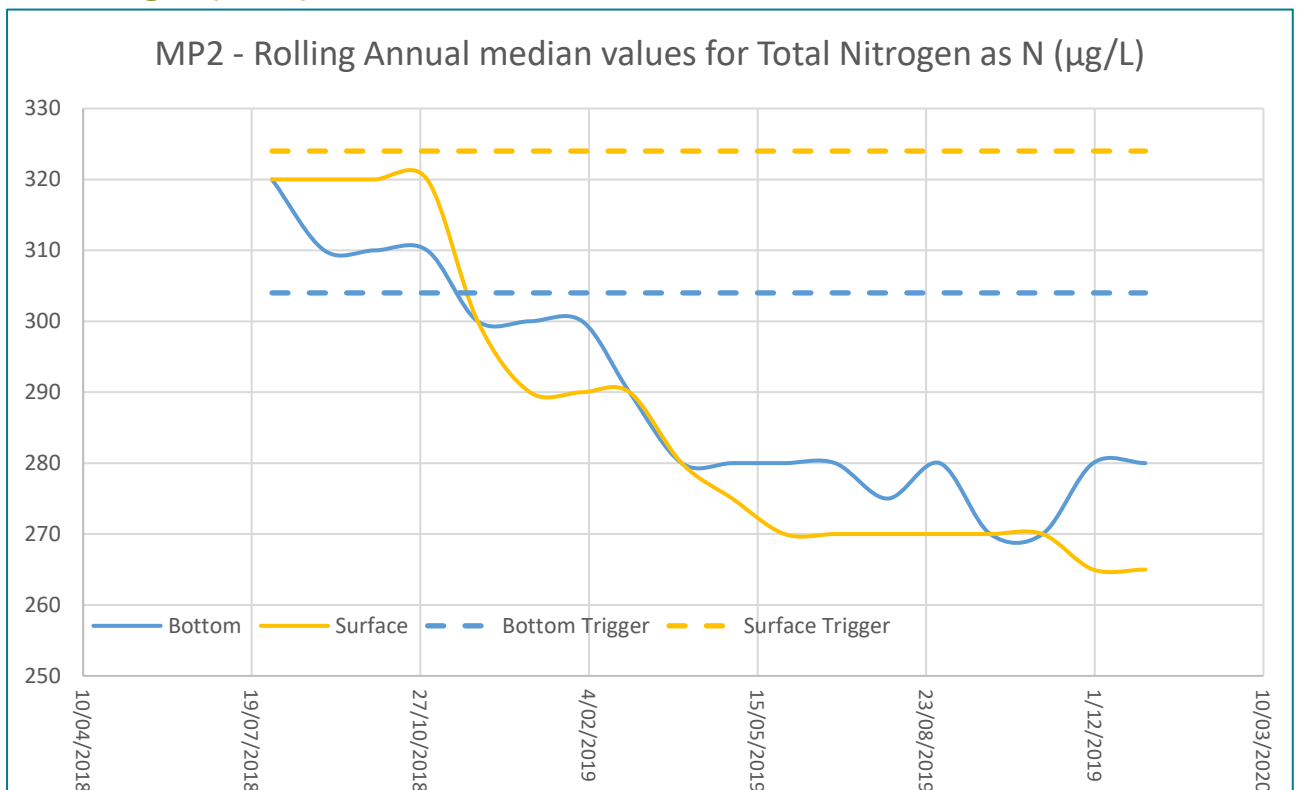
< = below limit of reporting, TAN = Total Ammonia Nitrogen, Chla = Chlorophyll a

5. Rolling Annual Medians

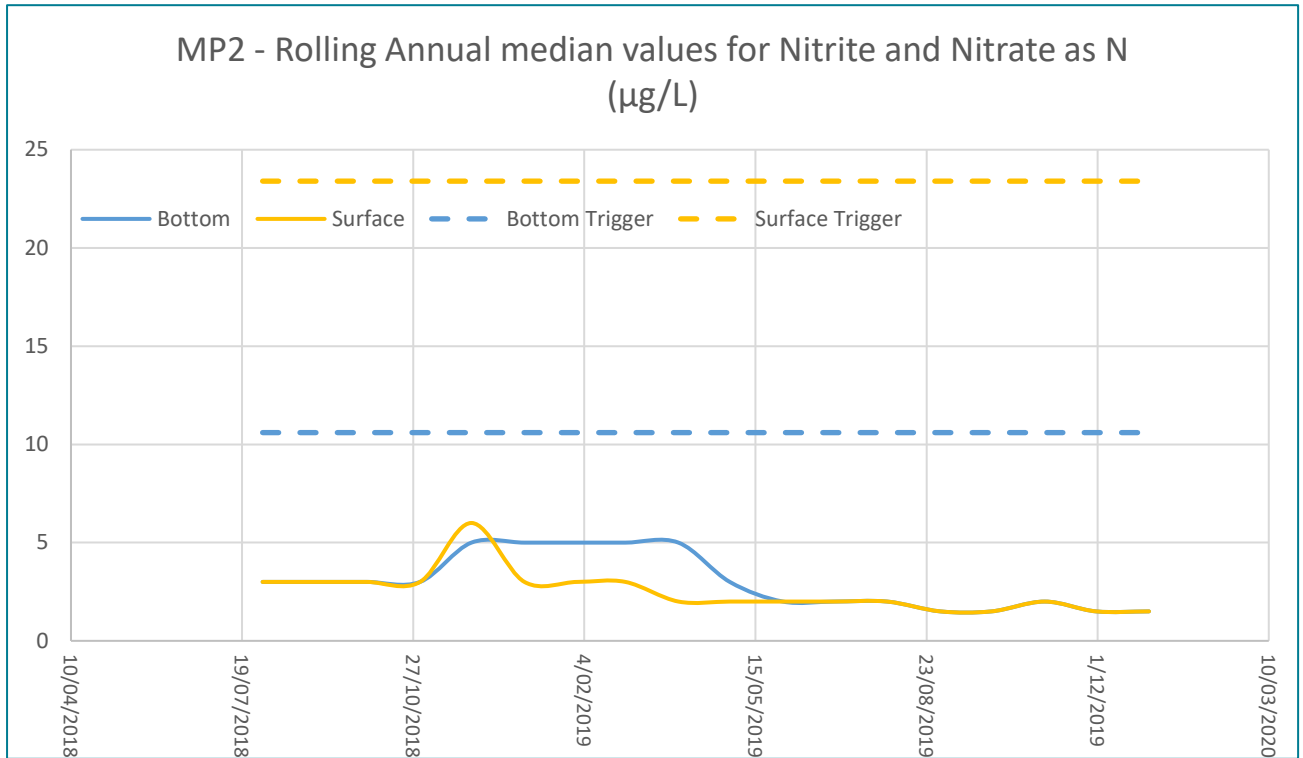
5.1 Total Ammonia Nitrogen (TAN)



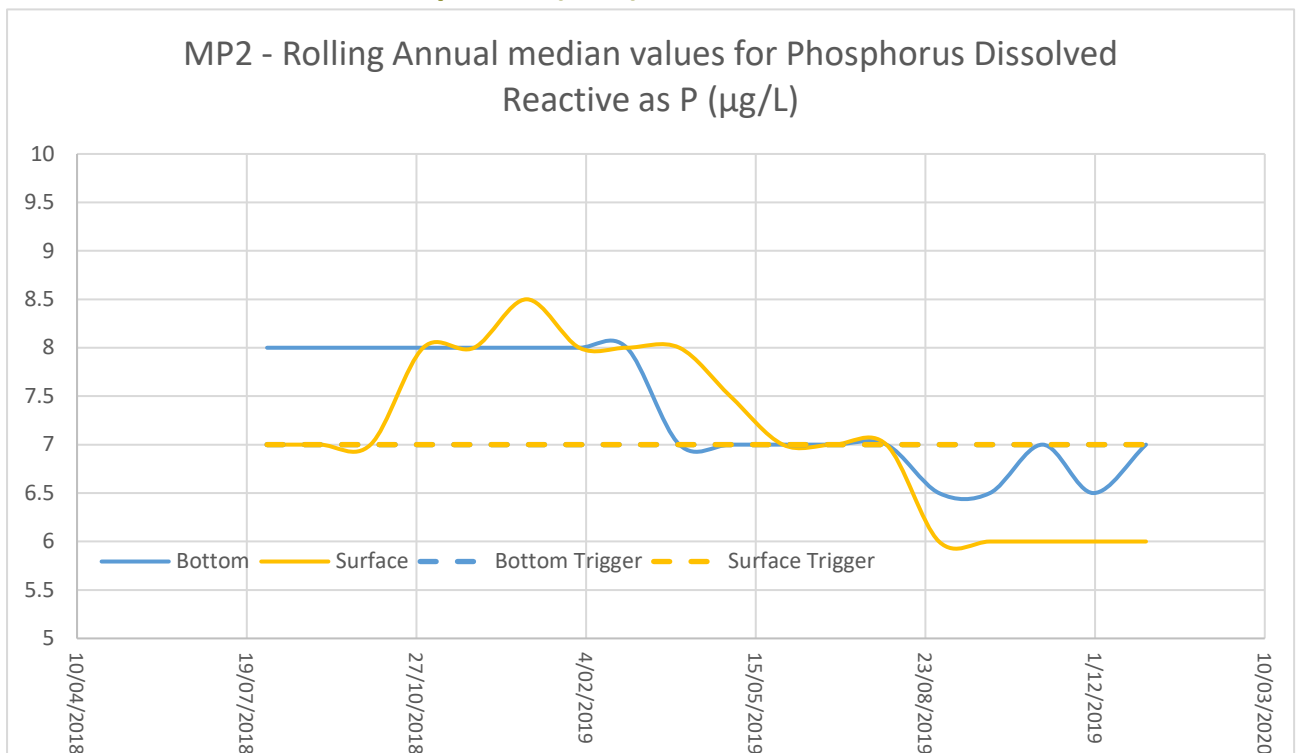
5.2 Nitrogen (Total)



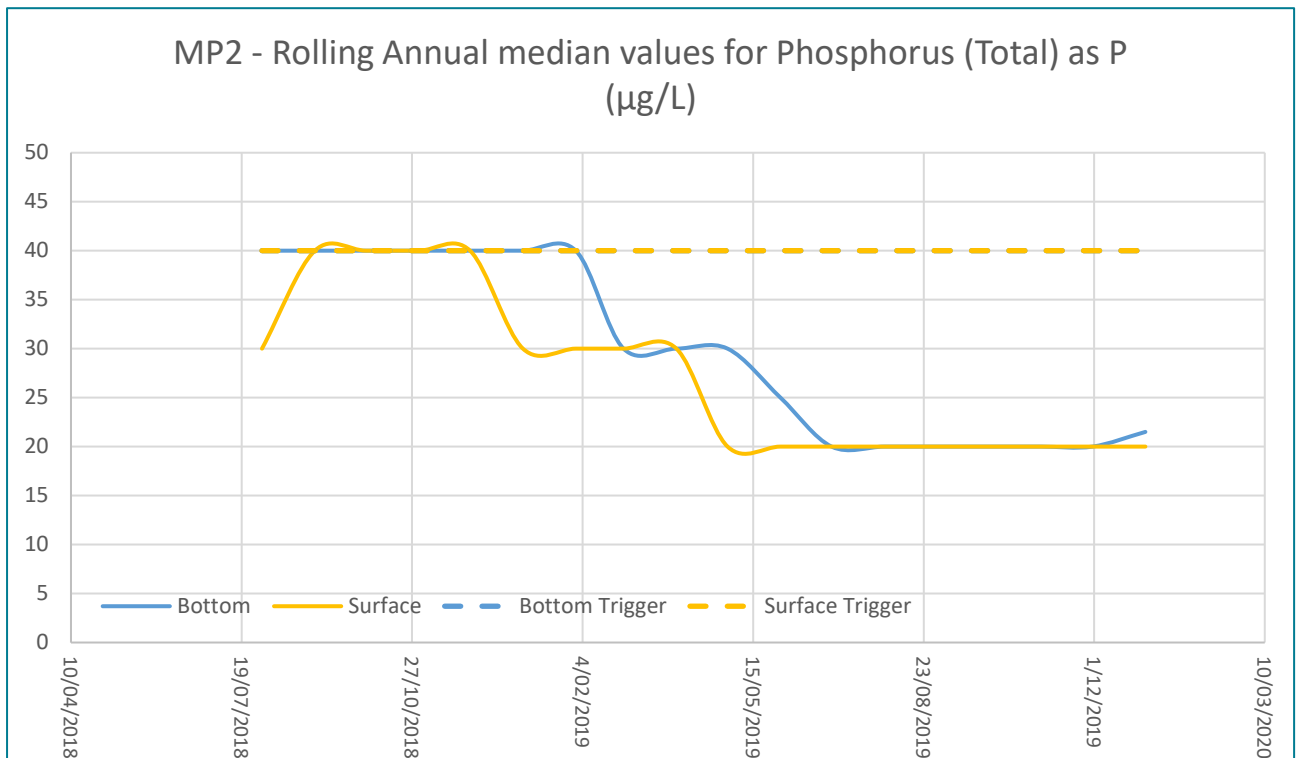
5.3 Nitrite and Nitrate



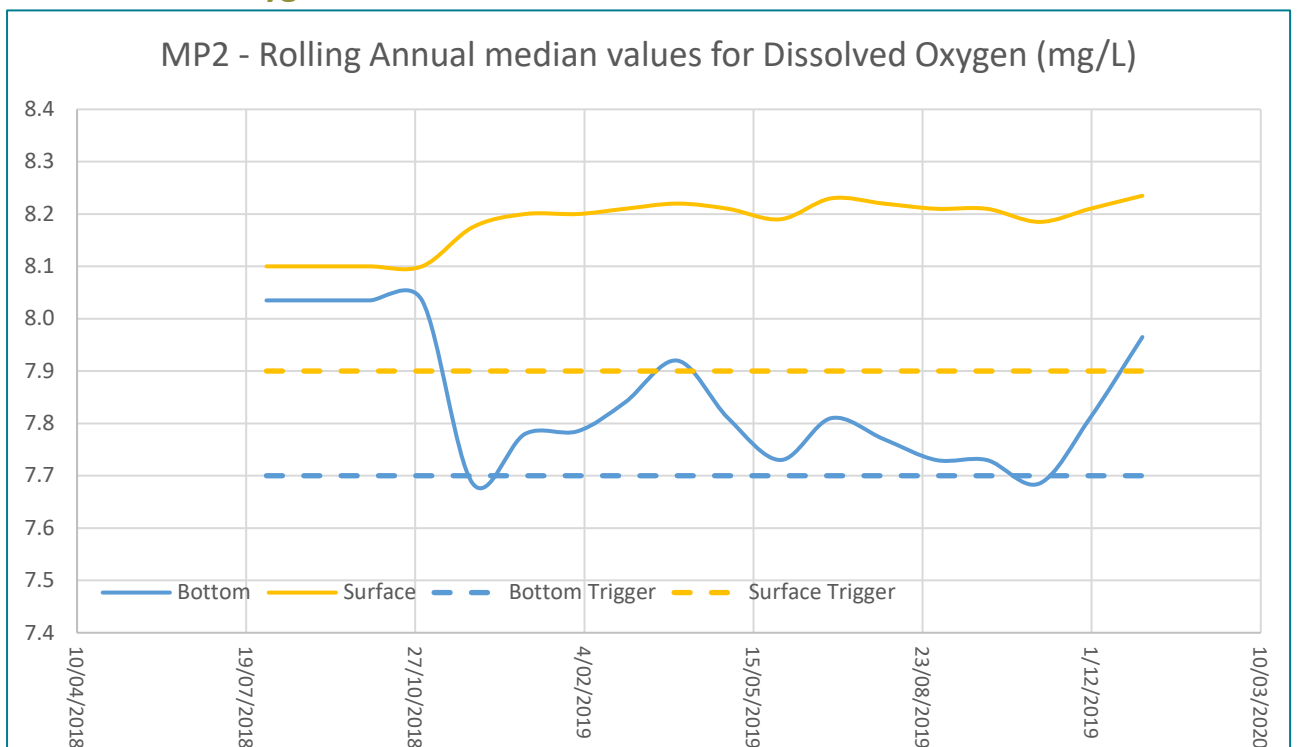
5.4 Dissolved Reactive Phosphorus (DRP)



5.5 Phosphorus (Total)



5.6 Dissolved Oxygen





EPA Tasmania is the Division of DPIPWE that supports Tasmania's independent statutory environmental regulator, the Environment Protection Authority.