

Oil Spill Response Atlas – Segment 103

The default guideline values (DGVs) for aquatic ecosystems presented herein have been derived from site specific information in accordance with the National Water Quality Management Strategy (NWQMS).



Water Body Name: D'Entrecasteaux Channel

OSRA Segment: 103

IMCRA Mesoscale Region: Bruny

IMCRA Provincial Region: Tasmanian Shelf

Ecosystem Classification: Slightly to Moderately Disturbed Ecosystem

Data Provider: Aquenal

BEMP Sites: M15

Period of record: 18/03/2009 to 12/10/2018.

Default Guideline Values

Data from one location (BEMP-HEDC15 (M15)) has been used in the derivation of the DGVs presented here in. . Field measurements were taken at the surface, 5 metres and approximately 1 metre from the bottom. Nutrient samples for laboratory analysis were taken at the surface, and near the bottom of the water column. Chlorophyll a data was collected for laboratory analysis from a 12 metre integrated sample (surface to a depth of 12 metres).

The following tables display the combined data as percentiles for the surface, 5 metre depth and near the bottom of the water column. The laboratory data from the surface or bottom can be considered for nutrient DGVs for the 5 metre depth. The shaded values represent the default guideline values (DGVs) for aquatic ecosystems for the depth indicated on an annual or seasonal basis. These can be applied as DGVs for aquatic ecosystems of waters encompassed within OSRA segment 103 (as highlighted above). The DGVs are summarised in Appendix A. The following links provide Information on the [IMCRA spatial network](#) and the Interim [Default guideline values for Coastal and Marine waters](#) of Tasmania.

Annual DGVs for Aquatic Ecosystems for Surface waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.4	7.6	7.8	8.3	8.8	9.1	9.3	145
Dissolved Oxygen (%)	88.0	91.2	93.8	100.7	108.5	111.6	114.7	145
Salinity (PPT)	30.9	32.4	33.2	34.7	35.7	36.1	36.4	142
Field Cond@TRef25 (mS/cm)	47.9	49.3	51.3	53.3	54.5	55.1	56.2	86
pH field - sensor TC	7.8	7.8	7.8	8.1	8.2	8.3	8.3	128
Temperature (Celsius)	11.3	11.8	12.7	15.0	16.8	17.8	18.3	145
Turbidity (NTU)	0.3	0.5	0.8	4.0	10.3	16.4	18.1	48
Redox (mV)	-999	22	95	408	442	453	462	88
Chlorophyll a (µg/L)*	0.3	0.3	0.4	0.9	1.3	1.9	2.4	143
TAN as N (mg/L)	0.002	0.003	0.003	0.005	0.008	0.009	0.011	134
Nitrite and Nitrate as N mg/L	0.001	0.001	0.001	0.016	0.037	0.040	0.042	52
Nitrate as N mg/L	0.001	0.001	0.001	0.007	0.029	0.033	0.038	135
Nitrite as N mg/L	0.001	0.001	0.001	0.001	0.003	0.004	0.005	39
Nitrogen (Total) as N mg/L	0.15	0.17	0.20	0.26	0.31	0.33	0.35	145
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.03	0.04	0.04	146
DRP as P mg/L	0.003	0.004	0.005	0.007	0.008	0.009	0.010	96
Silica as Si mg/L	0.1	0.1	0.1	0.2	0.4	0.6	0.7	96

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Summer DGVs for Aquatic Ecosystems for Surface waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.6	7.7	8.0	8.3	8.8	9.1	9.2	34
Dissolved Oxygen (%)	96.4	100.2	101.5	106.9	111.6	113.0	115.9	34
Salinity (PPT)	33.8	34.1	34.4	35.1	35.7	35.9	36.1	32
Field Cond@TRef25 (mS/cm)	49.8	52.0	52.5	53.6	54.3	54.9	56.5	20
pH field - sensor TC	7.8	7.8	7.9	8.1	8.3	8.3	8.3	26
Temperature (Celsius)	15.5	15.7	16.1	16.9	17.9	18.8	19.5	34
Turbidity (NTU)	0.3	0.4	0.4	8.4	15.8	19.1	32.0	12
Redox (mV)	-13	32	45	414	436	441	457	20
Chlorophyll a (µg/L)*	0.3	0.3	0.6	1.0	1.1	1.2	1.6	34
TAN as N (mg/L)	0.001	0.001	0.002	0.003	0.006	0.006	0.007	30
Nitrite and Nitrate as N mg/L	0.001	0.001	0.001	0.001	0.001	0.003	0.006	9
Nitrate as N mg/L	0.001	0.001	0.001	0.001	0.002	0.003	0.004	30
Nitrite as N mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	8
Nitrogen (Total) as N mg/L	0.12	0.15	0.18	0.25	0.29	0.32	0.33	34
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.03	0.04	0.04	34
DRP as P mg/L	0.003	0.003	0.004	0.005	0.006	0.007	0.007	22
Silica as Si mg/L	0.1	0.1	0.1	0.1	0.2	0.2	0.2	22

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Autumn DGVs for Aquatic Ecosystems for Surface waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	6.9	7.4	7.6	8.0	8.3	8.5	8.7	52
Dissolved Oxygen (%)	85.7	87.4	91.9	97.9	103.8	109.1	112.1	52
Salinity (PPT)	31.3	32.9	33.4	34.8	35.9	36.2	36.4	51
Field Cond@TRef25 (mS/cm)	48.0	50.1	51.7	53.1	54.6	55.0	56.2	30
pH field - sensor TC	7.8	7.8	7.9	8.1	8.2	8.2	8.3	47
Temperature (Celsius)	13.2	13.4	13.8	15.6	16.8	17.2	18.1	52
Turbidity (NTU)	0.8	1.5	2.5	6.9	8.6	9.2	9.7	10
Redox (mV)	-999	-999	78	375	439	450	451	33
Chlorophyll a (µg/L)*	0.3	0.3	0.7	1.0	1.5	1.9	2.1	50
TAN as N (mg/L)	0.003	0.003	0.003	0.005	0.008	0.011	0.013	47
Nitrite and Nitrate as N mg/L	0.001	0.001	0.001	0.012	0.026	0.030	0.035	20
Nitrate as N mg/L	0.001	0.001	0.001	0.007	0.023	0.030	0.031	48
Nitrite as N mg/L	0.001	0.001	0.001	0.001	0.003	0.004	0.004	15
Nitrogen (Total) as N mg/L	0.17	0.19	0.21	0.27	0.31	0.33	0.34	52
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.03	0.04	0.04	53
DRP as P mg/L	0.004	0.005	0.005	0.007	0.008	0.008	0.010	33
Silica as Si mg/L	0.1	0.1	0.1	0.2	0.4	0.4	0.6	33

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Winter DGVs for Aquatic Ecosystems for Surface waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.7	7.8	7.9	8.3	8.8	8.9	8.9	30
Dissolved Oxygen (%)	88.7	90.6	91.8	94.5	98.7	101.5	101.7	30
Salinity (PPT)	28.2	29.5	31.5	33.2	34.7	35.6	36.3	30
Field Cond@TRef25 (mS/cm)	46.7	48.1	48.9	52.2	53.6	54.4	55.8	18
pH field - sensor TC	7.7	7.8	7.8	8.0	8.1	8.2	8.2	29
Temperature (Celsius)	10.1	10.9	11.5	12.2	12.9	13.2	13.4	30
Turbidity (NTU)	0.6	0.8	1.0	3.6	10.1	16.1	17.8	13
Redox (mV)	113	121	142	358	456	461	463	18
Chlorophyll a (µg/L)*	0.3	0.3	0.3	0.4	0.7	0.8	1.0	30
TAN as N (mg/L)	0.003	0.005	0.005	0.007	0.008	0.009	0.010	29
Nitrite and Nitrate as N mg/L	0.032	0.033	0.035	0.038	0.041	0.043	0.045	12
Nitrate as N mg/L	0.021	0.024	0.026	0.032	0.038	0.039	0.042	29
Nitrite as N mg/L	0.001	0.001	0.001	0.003	0.005	0.005	0.006	8
Nitrogen (Total) as N mg/L	0.15	0.18	0.19	0.28	0.34	0.37	0.38	30
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.03	0.04	0.04	30
DRP as P mg/L	0.006	0.006	0.007	0.008	0.010	0.011	0.011	21
Silica as Si mg/L	0.2	0.3	0.3	0.5	0.7	1.0	1.2	21

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Spring DGVs for Aquatic Ecosystems for Surface waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	8.2	8.3	8.4	8.8	9.2	9.7	9.8	29
Dissolved Oxygen (%)	97.7	98.5	99.7	105.6	110.3	114.2	124.8	29
Salinity (PPT)	32.7	33.5	34.0	34.8	35.6	36.2	36.4	29
Field Cond@TRef25 (mS/cm)	50.1	51.0	52.0	53.4	54.4	55.0	55.2	18
pH field - sensor TC	7.7	7.8	7.8	8.1	8.3	8.3	8.4	26
Temperature (Celsius)	11.7	12.4	12.8	13.5	15.0	16.4	16.8	29
Turbidity (NTU)	0.6	0.7	0.9	2.2	5.8	9.6	12.9	13
Redox (mV)	42	85	113	410	445	454	462	17
Chlorophyll a (µg/L)*	0.1	0.3	0.6	1.1	2.4	3.1	4.0	29
TAN as N (mg/L)	0.003	0.003	0.003	0.005	0.006	0.008	0.009	28
Nitrite and Nitrate as N mg/L	0.001	0.001	0.001	0.002	0.034	0.035	0.041	11
Nitrate as N mg/L	0.001	0.001	0.001	0.004	0.017	0.027	0.031	28
Nitrite as N mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	8
Nitrogen (Total) as N mg/L	0.17	0.18	0.21	0.25	0.27	0.30	0.32	29
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.03	0.03	0.04	29
DRP as P mg/L	0.003	0.003	0.004	0.007	0.008	0.008	0.008	20
Silica as Si mg/L	0.1	0.1	0.1	0.2	0.3	0.3	0.3	20

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Annual DGVs for Aquatic Ecosystems for mid water 5 m (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.3	7.6	7.8	8.3	8.9	9.3	9.8	144
Dissolved Oxygen (%)	88.3	91.8	94.2	100.7	110.1	114.3	116.8	144
Salinity (PPT)	34.9	35.0	35.1	35.5	36.3	36.7	37.4	141
Field Cond@TRef25 (mS/cm)	53.1	53.3	53.7	54.6	55.2	56.3	57.3	85
pH field - sensor TC	7.8	7.8	7.9	8.1	8.2	8.3	8.3	125
Temperature (Celsius)	11.6	12.3	12.7	14.4	16.2	16.8	17.1	144
Turbidity (NTU)	0.2	0.2	0.7	3.7	9.2	12.7	15.9	44
Redox (mV)	-714	40	92	407	442	452	459	87
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)					ND			
Nitrite and Nitrate as N mg/L					ND			
Nitrate as N mg/L					ND			
Nitrite as N mg/L					ND			
Nitrogen (Total) as N mg/L					ND			
Phosphorus (Total) as P mg/L					ND			
DRP as P mg/L					ND			
Silica as Si mg/L					ND			

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Summer DGVs for Aquatic Ecosystems for mid water 5 m (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.9	8.0	8.2	8.6	9.1	9.4	9.9	34
Dissolved Oxygen (%)	99.6	100.1	103.2	109.9	113.2	116.3	118.2	34
Salinity (PPT)	34.9	35.0	35.0	35.5	36.1	36.4	36.5	32
Field Cond@TRef25 (mS/cm)	51.3	53.1	53.1	54.2	54.9	55.2	56.6	20
pH field - sensor TC	7.8	7.8	8.0	8.2	8.3	8.3	8.3	26
Temperature (Celsius)	14.3	14.5	15.0	16.0	17.0	17.5	17.7	34
Turbidity (NTU)	0.2	0.2	0.8	5.7	12.1	15.2	25.2	12
Redox (mV)	-6	34	45	367	435	438	442	20
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)					ND			
Nitrite and Nitrate as N mg/L					ND			
Nitrate as N mg/L					ND			
Nitrite as N mg/L					ND			
Nitrogen (Total) as N mg/L					ND			
Phosphorus (Total) as P mg/L					ND			
DRP as P mg/L					ND			
Silica as Si mg/L					ND			

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Autumn DGVs for Aquatic Ecosystems for mid water 5 m (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.1	7.2	7.6	8.0	8.5	8.7	9.2	51
Dissolved Oxygen (%)	86.7	88.8	93.2	98.7	106.4	110.5	115.7	51
Salinity (PPT)	34.9	35.1	35.2	35.5	36.4	36.7	37.2	50
Field Cond@TRef25 (mS/cm)	53.3	53.3	53.9	54.8	55.4	56.4	57.3	29
pH field - sensor TC	7.8	7.8	7.9	8.1	8.2	8.3	8.3	44
Temperature (Celsius)	13.7	14.0	14.3	15.4	16.5	16.7	17.0	51
Turbidity (NTU)	0.8	1.4	2.5	7.6	8.4	8.6	8.7	9
Redox (mV)	-999	-999	85	390	439	447	450	32
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)					ND			
Nitrite and Nitrate as N mg/L					ND			
Nitrate as N mg/L					ND			
Nitrite as N mg/L					ND			
Nitrogen (Total) as N mg/L					ND			
Phosphorus (Total) as P mg/L					ND			
DRP as P mg/L					ND			
Silica as Si mg/L					ND			

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Winter DGVs for Aquatic Ecosystems for mid water 5 m (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.4	7.5	7.7	8.1	8.4	8.5	8.9	30
Dissolved Oxygen (%)	87.2	88.4	91.5	94.6	98.2	100.5	101.6	30
Salinity (PPT)	34.8	34.8	34.9	35.5	36.3	36.9	37.6	30
Field Cond@TRef25 (mS/cm)	53.5	53.6	53.9	54.7	55.4	56.4	57.0	18
pH field - sensor TC	7.7	7.8	7.8	8.0	8.1	8.2	8.2	29
Temperature (Celsius)	10.6	10.9	12.0	12.6	13.3	13.7	13.8	30
Turbidity (NTU)	0.4	0.6	0.7	5.3	10.0	13.4	16.0	10
Redox (mV)	112	120	142	357	456	462	464	18
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)					ND			
Nitrite and Nitrate as N mg/L					ND			
Nitrate as N mg/L					ND			
Nitrite as N mg/L					ND			
Nitrogen (Total) as N mg/L					ND			
Phosphorus (Total) as P mg/L					ND			
DRP as P mg/L					ND			
Silica as Si mg/L					ND			

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Spring DGVs for Aquatic Ecosystems for mid water 5 m (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	8.0	8.3	8.5	8.8	9.6	9.9	10.6	29
Dissolved Oxygen (%)	94.5	95.4	99.6	104.3	114.0	116.8	125.5	29
Salinity (PPT)	35.0	35.0	35.1	35.8	36.2	36.4	37.3	29
Field Cond@TRef25 (mS/cm)	53.3	53.4	54.1	54.5	54.8	55.9	56.9	18
pH field - sensor TC	7.8	7.8	7.8	8.1	8.3	8.3	8.4	26
Temperature (Celsius)	11.5	11.7	12.4	12.9	13.9	14.4	14.9	29
Turbidity (NTU)	0.1	0.1	0.4	1.2	4.5	8.0	11.7	13
Redox (mV)	43	87	110	411	446	454	462	17
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)					ND			
Nitrite and Nitrate as N mg/L					ND			
Nitrate as N mg/L					ND			
Nitrite as N mg/L					ND			
Nitrogen (Total) as N mg/L					ND			
Phosphorus (Total) as P mg/L					ND			
DRP as P mg/L					ND			
Silica as Si mg/L					ND			

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Annual DGVs for Aquatic Ecosystems for bottom waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.2	7.4	7.6	8.2	8.7	9.2	9.4	145
Dissolved Oxygen (%)	87.2	90.0	93.5	98.5	107.7	110.8	114.0	145
Salinity (PPT)	34.9	35.0	35.1	35.6	36.4	36.7	37.5	142
Field Cond@TRef25 (mS/cm)	53.2	53.4	53.9	54.7	55.3	56.4	57.4	86
pH field - sensor TC	7.8	7.8	7.9	8.1	8.2	8.3	8.3	126
Temperature (Celsius)	11.6	12.2	12.7	14.3	15.9	16.6	16.8	145
Turbidity (NTU)	0.3	0.6	0.9	3.3	10.5	14.3	17.4	49
Redox (mV)	-999	30	90	407	443	453	459	88
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)	0.002	0.003	0.003	0.006	0.009	0.011	0.012	134
Nitrite and Nitrate as N mg/L	0.001	0.001	0.007	0.030	0.045	0.048	0.054	52
Nitrate as N mg/L	0.001	0.001	0.003	0.018	0.038	0.043	0.046	135
Nitrite as N mg/L	0.001	0.001	0.001	0.001	0.004	0.005	0.006	39
Nitrogen (Total) as N mg/L	0.16	0.18	0.21	0.27	0.32	0.35	0.37	145
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.04	0.04	0.04	144
DRP as P mg/L	0.003	0.004	0.005	0.008	0.009	0.011	0.011	96
Silica as Si mg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.2	96

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Summer DGVs for Aquatic Ecosystems for bottom waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.7	7.8	8.1	8.6	9.0	9.3	9.5	34
Dissolved Oxygen (%)	96.1	98.9	100.3	106.8	111.3	113.5	114.4	34
Salinity (PPT)	34.9	35.0	35.1	35.6	36.2	36.5	36.6	32
Field Cond@TRef25 (mS/cm)	51.3	53.1	53.3	54.4	55.0	55.4	56.6	20
pH field - sensor TC	7.8	7.9	8.0	8.2	8.3	8.3	8.4	26
Temperature (Celsius)	14.1	14.2	14.4	15.8	16.7	16.8	17.1	34
Turbidity (NTU)	0.2	0.3	0.5	4.6	9.8	10.8	15.8	12
Redox (mV)	-2	39	47	369	436	439	443	20
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)	0.001	0.001	0.003	0.005	0.008	0.010	0.011	30
Nitrite and Nitrate as N mg/L	0.001	0.001	0.001	0.004	0.019	0.032	0.035	9
Nitrate as N mg/L	0.001	0.001	0.001	0.001	0.006	0.010	0.018	30
Nitrite as N mg/L	0.001	0.001	0.001	0.001	0.003	0.006	0.008	8
Nitrogen (Total) as N mg/L	0.14	0.15	0.17	0.23	0.29	0.35	0.36	34
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.04	0.04	0.04	34
DRP as P mg/L	0.002	0.003	0.004	0.006	0.007	0.008	0.008	22
Silica as Si mg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	22

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Autumn DGVs for Aquatic Ecosystems for bottom waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	6.9	7.1	7.4	7.7	8.2	8.4	9.0	52
Dissolved Oxygen (%)	84.4	86.5	90.1	95.7	102.3	104.8	112.8	52
Salinity (PPT)	35.0	35.1	35.2	35.5	36.5	36.7	37.3	51
Field Cond@TRef25 (mS/cm)	53.2	53.3	54.0	54.9	55.3	56.5	57.4	30
pH field - sensor TC	7.8	7.8	7.9	8.1	8.2	8.3	8.3	45
Temperature (Celsius)	13.7	13.8	14.2	15.3	16.3	16.6	16.7	52
Turbidity (NTU)	0.8	0.9	2.7	5.2	8.3	9.6	13.0	11
Redox (mV)	-999	-999	78	375	440	448	450	33
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)	0.003	0.003	0.004	0.007	0.010	0.012	0.015	47
Nitrite and Nitrate as N mg/L	0.003	0.007	0.014	0.026	0.035	0.044	0.045	20
Nitrate as N mg/L	0.001	0.002	0.009	0.019	0.031	0.036	0.041	48
Nitrite as N mg/L	0.001	0.001	0.001	0.001	0.004	0.005	0.005	15
Nitrogen (Total) as N mg/L	0.19	0.20	0.21	0.28	0.31	0.33	0.35	52
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.04	0.04	0.04	51
DRP as P mg/L	0.005	0.005	0.005	0.008	0.009	0.010	0.010	33
Silica as Si mg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.2	33

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Winter DGVs for Aquatic Ecosystems for bottom waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.3	7.5	7.6	8.1	8.3	8.4	8.5	30
Dissolved Oxygen (%)	87.5	89.4	90.5	93.8	96.9	98.3	98.8	30
Salinity (PPT)	34.8	34.8	35.0	35.5	36.4	37.0	37.7	30
Field Cond@TRef25 (mS/cm)	53.7	53.9	53.9	54.7	55.6	56.5	57.3	18
pH field - sensor TC	7.7	7.8	7.8	8.0	8.1	8.2	8.2	29
Temperature (Celsius)	10.7	11.0	12.0	12.6	13.4	13.5	13.8	30
Turbidity (NTU)	0.5	0.6	0.7	3.5	13.1	16.9	18.3	14
Redox (mV)	113	118	140	358	457	462	465	18
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)	0.003	0.003	0.003	0.005	0.007	0.008	0.009	29
Nitrite and Nitrate as N mg/L	0.038	0.041	0.042	0.046	0.054	0.054	0.054	12
Nitrate as N mg/L	0.029	0.033	0.035	0.041	0.044	0.049	0.050	29
Nitrite as N mg/L	0.001	0.001	0.001	0.003	0.006	0.007	0.007	8
Nitrogen (Total) as N mg/L	0.16	0.19	0.22	0.30	0.35	0.36	0.38	30
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.04	0.04	0.05	30
DRP as P mg/L	0.008	0.008	0.008	0.009	0.011	0.012	0.013	21
Silica as Si mg/L	0.1	0.1	0.1	0.1	0.2	0.2	0.2	21

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Spring DGVs for Aquatic Ecosystems for bottom waters (Shaded)

Parameter	5 th %ile	10 th %ile	20 th %ile	Median	80 th %ile	90 th %ile	95 th %ile	Sample Number
Dissolved Oxygen (mg/L)	8.0	8.1	8.3	8.7	9.1	9.7	9.8	29
Dissolved Oxygen (%)	93.8	95.1	96.6	101.8	109.6	111.7	115.7	29
Salinity (PPT)	35.0	35.0	35.1	35.8	36.3	36.5	37.5	29
Field Cond@TRef25 (mS/cm)	53.5	53.6	54.2	54.7	54.9	56.1	57.1	18
pH field - sensor TC	7.8	7.8	7.9	8.1	8.2	8.3	8.4	26
Temperature (Celsius)	11.5	11.7	12.2	12.8	13.5	13.7	14.2	29
Turbidity (NTU)	0.8	0.9	1.1	2.2	4.9	6.9	10.6	12
Redox (mV)	42	87	109	413	447	455	463	17
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)	0.003	0.003	0.003	0.007	0.009	0.010	0.011	28
Nitrite and Nitrate as N mg/L	0.001	0.001	0.008	0.018	0.041	0.044	0.051	11
Nitrate as N mg/L	0.001	0.003	0.007	0.015	0.036	0.039	0.044	28
Nitrite as N mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	8
Nitrogen (Total) as N mg/L	0.18	0.21	0.22	0.25	0.29	0.33	0.37	29
Phosphorus (Total) as P mg/L	0.02	0.02	0.03	0.03	0.04	0.04	0.04	29
DRP as P mg/L	0.003	0.004	0.004	0.008	0.009	0.011	0.011	20
Silica as Si mg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	20

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous. ND = No data collected.

Appendix A

Surface	Physico-chemical indicators and default guideline values for aquatic ecosystems																				
	DO (mg/L)		DO (% sat)		Salinity	Cond	pH		Temp (°C)		Turb	Redox	Chl a	TAN as N	NO _x as N	NO ₃ as N	NO ₂ as N	Total N as N	Total P as P	DRP as P	SiO ₂ as Si
	lower	upper	lower	upper	(PPT)	(mS/cm)	lower	upper	lower	upper	NTU	(mV)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(µg/L)	(mg/L)
Annual	7.8	8.8	93.8	108.5	35.7	54.5	7.8	8.2	12.7	16.8	10.3	442	1.3	8.0	37.0	29.0	3.0	0.31	0.03	8.0	0.4
Summer	8.0	8.8	101.5	111.6	35.7	54.3	7.9	8.3	16.1	17.9	15.8~	436	1.1	6.0	1.0~	2.0	1.0~	0.29	0.03	6.0	0.2
Autumn	7.6	8.3	91.9	103.8	35.9	54.6	7.9	8.2	13.8	16.8	8.6~	439	1.5	8.0	26.0	23.0	3.0	0.31	0.03	8.0	0.4
Winter	7.9	8.8	91.8	98.7	34.7	53.6	7.8	8.1	11.5	12.9	10.1~	456	0.7	8.0	41.0~	38.0	5.0~	0.34	0.03	10.0	0.7
Spring	8.4	9.2	99.7	110.3	35.6	54.4	7.8	8.3	12.8	15.0	5.8~	445	2.4	6.0	34.0~	17.0	1.0~	0.27	0.03	8.0	0.3

NB: DO (dissolved oxygen), Turb (turbidity), Chl a (Chlorophyll a – Lab analysis), TAN (Total Ammonia Nitrogen (NH₃ and NH₄⁺)), NO_x (Nitrite and Nitrate), NO₃ (Nitrate), NO₂ (Nitrite), DRP (Dissolved reactive phosphorous), SiO₂ (Silica), ~ <95% confidence. Figures shown above are based on data collected from 17/03/2009 to 11/10/2018.

5 metres	Physico-chemical indicators and default guideline values for aquatic ecosystems																				
	DO (mg/L)		DO (% sat)		Salinity	Cond	pH		Temp (°C)		Turb	Redox	Chl a	TAN as N	NO _x as N	NO ₃ as N	NO ₂ as N	Total N as N	Total P as P	DRP as P	SiO ₂ as Si
	lower	upper	lower	upper	(PPT)	(mS/cm)	lower	upper	lower	upper	NTU	(mV)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(µg/L)	(mg/L)
Annual	7.8	8.9	94.2	110.1	36.3	55.2	7.9	8.2	12.7	16.2	9.2	442	ND	ND	ND	ND	ND	ND	ND	ND	ND
Summer	8.2	9.1	103.2	113.2	36.1	54.9	8.0	8.3	15.0	17.0	12.1~	435	ND	ND	ND	ND	ND	ND	ND	ND	ND
Autumn	7.6	8.5	93.2	106.4	36.4	55.4	7.9	8.2	14.3	16.5	8.4~	439	ND	ND	ND	ND	ND	ND	ND	ND	ND
Winter	7.7	8.4	91.5	98.2	36.3	55.4	7.8	8.1	12.0	13.3	10.0~	456	ND	ND	ND	ND	ND	ND	ND	ND	ND
Spring	8.5	9.6	99.6	114.0	36.2	54.8	7.8	8.3	12.4	13.9	4.5~	446	ND	ND	ND	ND	ND	ND	ND	ND	ND

NB: DO (dissolved oxygen), Turb (turbidity), Chl a (Chlorophyll a – Lab analysis), TAN (Total Ammonia Nitrogen (NH₃ and NH₄⁺)), NO_x (Nitrite and Nitrate), NO₃ (Nitrate), NO₂ (Nitrite), DRP (Dissolved reactive phosphorous), SiO₂ (Silica), ND = No Data, ~ <95% confidence. Figures shown above are based on data collected from 17/03/2009 to 11/10/2018.

Bottom	Physico-chemical indicators and default guideline values for aquatic ecosystems																				
	DO (mg/L)		DO (% sat)		Salinity	Cond	pH		Temp (°C)		Turb	Redox	Chl a	TAN as N	NO _x as N	NO ₃ as N	NO ₂ as N	Total N as N	Total P as P	DRP as P	SiO ₂ as Si
	lower	upper	lower	upper	(PPT)	(mS/cm)	lower	upper	lower	upper	NTU	(mV)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(µg/L)	(mg/L)
Annual	7.6	8.7	93.5	107.7	36.4	55.3	7.9	8.2	12.7	15.9	10.5	443	ND	9.0	45.0	38.0	4.0	0.32	0.04	9.0	0.1
Summer	8.1	9.0	100.3	111.3	36.2	55.0	8.0	8.3	14.4	16.7	9.8~	436	ND	8.0	19.0~	6.0	3.0~	0.29	0.04	7.0	0.1
Autumn	7.4	8.2	90.1	102.3	36.5	55.3	7.9	8.2	14.2	16.3	8.3~	440	ND	10.0	35.0	31.0	4.0	0.31	0.04	9.0	0.1
Winter	7.6	8.3	90.5	96.9	36.4	55.6	7.8	8.1	12.0	13.4	13.1	457	ND	7.0	54.0~	44.0	6.0~	0.35	0.04	11.0	0.2
Spring	8.3	9.1	96.6	109.6	36.3	54.9	7.9	8.2	12.2	13.5	4.9~	447	ND	9.0	41.0~	36.0	1.0~	0.29	0.04	9.0	0.1

NB: DO (dissolved oxygen), Turb (turbidity), Chl a (Chlorophyll a – Lab analysis), TAN (Total Ammonia Nitrogen (NH₃ and NH₄⁺)), NO_x (Nitrite and Nitrate), NO₃ (Nitrate), NO₂ (Nitrite), DRP (Dissolved reactive phosphorous), SiO₂ (Silica), ND = No Data, ~ <95% confidence. Figures shown above are based on data collected from 17/03/2009 to 11/10/2018.

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