

Oil Spill Response Atlas – Segment 8I

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: Storm Bay

OSRA Segment: 8I

IMCRA Mesoscale Region: Bruny

IMCRA Provincial Region: Tasmanian Shelf

Ecosystem Classification: Slightly to Moderately Disturbed Ecosystem

Data Provider: Water Section, EPA (Tasmania), IMAS, and Petuna Aquaculture Pty Ltd

EPA Sites: SB8, SB9 (EPA and IMAS), PET-SB1, and PET-SB2 (Petuna)

Period of record: 10/01/2018 to 1/05/2019 (EPA), 14/08/2019 to 13/07/2020 (IMAS), 4/10/2016 to 18/10/2020 (Petuna).

Default Guideline Values

Data from four locations (SB8, SB9, PET-SB1, and PET-SB2) have been used in the derivation of the DGVs presented here in. For each site field measurements were taken at the surface and every 5 metres to approximately 1 metre from the bottom. Nutrient samples for laboratory analysis were taken at the surface, 10 metres 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, 10 metre depth and near the bottom of the water column. The shaded values represent the annual default guideline values (DGVs) for aquatic ecosystems for the depth indicated. These can be applied as DGVs for aquatic ecosystems of waters encompassed within OSRA segment 8I (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.

Default Guideline Values for Aquatic Ecosystems – Oil Spill Response Atlas - Segment 8I

Annual DGVs for Aquatic Ecosystems for Surface waters (Shaded)

Parameter	5th %ile	10th %ile	20th %ile	Median	80th %ile	90th %ile	95th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.5	7.7	7.9	8.5	9.0	9.2	9.4	82
Dissolved Oxygen (%)	94.2	95.7	98.3	102.2	104.7	105.6	108.3	87
Salinity (PPT)	32.7	33.0	33.7	34.2	34.9	35.1	35.3	89
pH field - sensor TC	8.0	8.0	8.1	8.2	8.2	8.3	8.4	88
Temperature (Celsius)	9.9	10.1	10.6	14.0	17.2	18.2	18.4	89
Turbidity (NTU)	0.3	0.3	0.4	0.5	0.7	0.9	1.0	30
Chlorophyll a (µg/L)*	0.3	0.5	0.7	1.2	2.4	3.5	4.5	91
TAN as N (mg/L)	0.003	0.003	0.003	0.005	0.008	0.011	0.014	89
Nitrite and Nitrate as N mg/L	0.001	0.001	0.001	0.001	0.017	0.030	0.038	89
Nitrate as N mg/L	0.001	0.001	0.001	0.001	0.015	0.028	0.035	89
Nitrite as N mg/L~	0.001	0.001	0.001	0.001	0.001	0.001	0.001	12
Nitrogen (Total) as N mg/L	0.21	0.23	0.25	0.28	0.31	0.35	0.37	89
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.04	0.04	0.04	89
DRP as P mg/L	0.002	0.003	0.005	0.006	0.010	0.011	0.012	89
Silica as Si mg/L	0.1	0.1	0.1	0.2	0.3	0.4	0.4	89

*Integrated sample 0 to 12 metres, TAN=Total Ammonia Nitrogen (NH₃ and NH₄⁺), DRP= Dissolved Reactive Phosphorous.

Annual DGVs for Aquatic Ecosystems for mid water 10 m (Shaded)

Parameter	5th %ile	10th %ile	20th %ile	Median	80th %ile	90th %ile	95th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.6	7.7	8.0	8.4	8.9	9.1	9.3	81
Dissolved Oxygen (%)	95.0	96.6	98.2	101.4	104.5	106.2	107.7	86
Salinity (PPT)	33.7	33.9	34.1	34.5	35.1	35.2	35.3	86
pH field - sensor TC	8.0	8.0	8.1	8.2	8.3	8.3	8.4	85
Temperature (Celsius)	10.2	10.5	11.0	13.6	16.7	17.6	18.0	86
Turbidity (NTU)	0.3	0.3	0.4	0.4	0.7	0.7	0.7	30
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)	0.003	0.003	0.003	0.003	0.006	0.009	0.010	71
Nitrite and Nitrate as N mg/L	0.001	0.001	0.001	0.001	0.015	0.026	0.035	71
Nitrate as N mg/L	0.001	0.001	0.001	0.001	0.014	0.020	0.030	71
Nitrite as N mg/L~	0.001	0.001	0.001	0.001	0.001	0.001	0.001	12
Nitrogen (Total) as N mg/L	0.21	0.23	0.24	0.27	0.32	0.34	0.36	71
Phosphorus (Total) as P mg/L	0.02	0.02	0.02	0.03	0.03	0.04	0.04	71
DRP as P mg/L	0.002	0.004	0.004	0.006	0.009	0.010	0.012	71
Silica as Si mg/L	0.1	0.1	0.1	0.1	0.2	0.3	0.3	71

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

Default Guideline Values for Aquatic Ecosystems – Oil Spill Response Atlas - Segment 8I

Annual DGVs for Aquatic Ecosystems for bottom waters (Shaded)

Parameter	5th %ile	10th %ile	20th %ile	Median	80th %ile	90th %ile	95th %ile	Sample Number
Dissolved Oxygen (mg/L)	7.1	7.2	7.5	8.0	8.4	8.6	8.7	76
Dissolved Oxygen (%)	87.2	90.3	92.5	95.2	97.2	100.5	101.5	79
Salinity (PPT)	34.2	34.6	34.7	35.0	35.2	35.3	35.4	79
pH field - sensor TC	8.0	8.0	8.1	8.1	8.2	8.3	8.3	78
Temperature (Celsius)	11.2	11.4	12.0	13.2	15.1	16.5	17.3	79
Turbidity (NTU)	0.3	0.4	0.5	0.9	2.2	3.2	3.4	30
Chlorophyll a (µg/L)*					ND			
TAN as N (mg/L)	0.003	0.003	0.003	0.009	0.016	0.020	0.025	89
Nitrite and Nitrate as N mg/L	0.001	0.001	0.007	0.021	0.044	0.056	0.058	89
Nitrate as N mg/L	0.001	0.001	0.006	0.017	0.040	0.047	0.054	89
Nitrite as N mg/L~	0.001	0.001	0.001	0.001	0.001	0.002	0.002	12
Nitrogen (Total) as N mg/L	0.19	0.24	0.26	0.30	0.34	0.37	0.39	89
Phosphorus (Total) as P mg/L	0.02	0.02	0.03	0.03	0.04	0.04	0.04	89
DRP as P mg/L	0.005	0.007	0.007	0.010	0.012	0.013	0.014	89
Silica as Si mg/L	0.1	0.1	0.1	0.1	0.2	0.2	0.2	89

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

Appendix A

Annual	Physico-chemical indicators and default guideline values for aquatic ecosystems																		
	DO (mg/L)		DO (% sat)		Salinity	pH		Temp (°C)		Turb	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)	lower	upper	lower	upper	NTU	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(µg/L)	(mg/L)
Surface	7.9	9.0	98.3	104.7	34.9	8.1	8.2	10.6	17.2	0.7	2.4	8.0	17.0	15.0	1.0	0.31	0.04	10.0	0.3
10 metres	8.0	8.9	98.2	104.5	35.1	8.1	8.3	11.0	16.7	0.7	ND	6.0	15.0	14.0	1.0	0.32	0.03	9.0	0.2
Bottom	7.5	8.4	92.5	97.2	35.2	8.1	8.2	12.0	15.1	2.2	ND	16.0	44.0	40.0	1.0	0.34	0.04	12.0	0.2

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. Figures shown above are based on data collected from 04/10/2016 to 18/10/2020.

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