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Appendix :

AMBIENT WATER QUALITY CRITERIA RECOMMENDED TO PROTECT FRESHWATER AQUATIC LIFE

Total Ammonia, as Nitrogen

pH-Dependent Values of the CMC (Acute Criterion)

Maximum Concentration Criteria 1-hr avg (mg N/l)*		
pH	**Salmonids Present**	**Salmonids Absent**
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.0	42.0
6.9	26.2	39.2
7.0	24.1	36.1
7.1	21.9	32.9
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.3	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.64	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.41
8.1	4.64	6.95
8.2	3.83	5.73
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

* Criteria Maximum Concentration (CMC) with Salmonids Present

$$CMC = \frac{0.275}{1 + 10^{(7.204 - pH)}} + \frac{39.0}{1 + 10^{(pH - 7.204)}}$$

* Criteria Maximum Concentration (CMC) with Salmonids Absent

$$CMC = \frac{0.411}{1 + 10^{(7.204 - pH)}} + \frac{58.4}{1 + 10^{(pH - 7.204)}}$$

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Appendix :

AMBIENT WATER QUALITY CRITERIA RECOMMENDED TO PROTECT FRESHWATER AQUATIC LIFE

Total Ammonia, as Nitrogen

Temperature and pH-Dependent Values of the CCC (Chronic Criterion)
For Fish Early Stages Present

Continuous Concentration Criteria for Fish Early Life Stages Present, 30-day avg (mg N/l)										
pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.8	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	2.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

$$CCC_{early\ life\ present} = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \cdot MIN\left(2.85, 1.45 \cdot 10^{0.028(25-T)}\right)$$

$$CCC_{early\ life\ absent(tablenotsium)} = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \cdot MIN\left(2.85, 1.45 \cdot 10^{0.028(25-T)}\right)$$

Note: T is temperature in °C