

**Table 2c. Acute-Chronic Ratios**

Species	Hardness (mg/L as CaCO <sub>3</sub> )	Acute Value (µg/L)	Chronic Value (µg/L)	Ratio	Reference	Overall Ratio for Species	
Snail, <i>Campeloma decisum</i>	35-55 35-55	1673 <sup>a</sup> 1673 <sup>a</sup>	8.73 10.94	191.61 152.95	Arthur and Leonard 1970 Arthur and Leonard 1970	171.19	
Cladoceran, <i>Ceriodaphnia dubia</i>	179 94.1 57 --	28.42 <sup>b</sup> 63.33 <sup>b</sup> 13.4 18.974 <sup>c</sup>	7.90 19.36 24.5 9.17	3.60 3.27 0.55 2.07	Belanger et al. 1989 Belanger et al. 1989 Oris et al. 1991 Carlson et al. 1986	2.90 <sup>h</sup>	✓
Cladoceran, <i>Daphnia magna</i>	51 104 211	26 33.76 <sup>d</sup> 69	12.58 19.89 6.06	2.07 1.70 11.39	Chapman et al. Manuscript Chapman et al. Manuscript Chapman et al. Manuscript	3.42	✓
Cladoceran, <i>Daphnia pulex</i>	57.5 115 230	25.737 <sup>e</sup> 27.6 <sup>e</sup> 28.79 <sup>e</sup>	2.83 7.07 9.16	9.10 3.90 3.14	Winner 1985 Winner 1985 Winner 1985	4.82	✓
Rainbow trout, <i>Oncorhynchus mykiss</i>	120	80	27.77	2.88	Seim et al. 1984	2.88	✓
Chinook salmon, <i>Oncorhynchus tshawytscha</i>	20-45	33.1	5.92	5.59	Chapman 1975, 1982	5.59	✓
Bluntnose minnow, <i>Pimephales notatus</i>	172-230	231.9 <sup>f</sup>	18	12.88	Horning and Neiheisel 1979	12.88	
Fathead minnow, <i>Pimephales promelas</i>	45	106.875 <sup>g</sup>	9.38	11.40	Lind et al. 1978	11.40	
Bluegill, <i>Lepomis macrochirus</i>	21-40	1100	27.15	40.52	Benoit 1975	40.49	
Sheepshead minnow, <i>Cyprinodon variegatus</i>	-	368	249	1.48	Hughes et al. 1989	1.48	✓

<sup>a</sup>Geometric mean of two values from Arthur and Leonard (1970) in Table 1.

<sup>b</sup>Geometric mean of five values from Belanger et al. (1989) in Table 1. ACR is based on dissolved metal measurements.

<sup>c</sup>Geometric mean of two values from Carlson et al. (1986) in Table 1.

<sup>d</sup>Geometric mean of two values from Chapman manuscript in Table 1.

<sup>e</sup>Geometric mean of two values from Winner (1985) in Table 1.

<sup>f</sup>Geometric mean of three values from Horning and Neiheisel (1979) in Appendix D.

<sup>g</sup>Geometric mean of three values from Lind et al. (1978) in Table 1.

<sup>h</sup>ACR from Oris et al. (1991) not used in calculating overall ratio for species because it is <1.

**FACR**

Freshwater final acute-chronic ratio = 3.23

Saltwater final acute-chronic ratio = 3.23