Appendix C. "Chronic" Sensitivity of Saltwater Animals to Low Dissolved Oxygen. Data Are Included for Any Test in which Growth Was Measured.

Species	Common name	Initial life stage	Salinity (ppt)/ Temperature (/C)	Duration (days)	Control & NOEC[a] (mg/L)	OEC[a] (mg/L)	Effect (% reduction)[b]	Chronic Value (mg/L)	Growth IC25[a] (mg/L)	Reference
				Invertebrates						
Americamysis bahia	mysid shrimp	juvenile, <48 hr old	30-32/25-28	10	6.0 3.5 3.0 2.4	1.6 0.9	30% G 51% G, 91% S	1.960	NA[c]	Poucher, 1988a
Americamysis bahia	mysid shrimp	juvenile, <48 hr old	30-32/25-26	28	6.28, 4.17	3.17 2.76 2.17 1.40	25% G 20% G 27% G, 76% R 52% G, 100% R	3.636	NA	Poucher, 1988a
Cancer irroratus	Atlantic rock crab	larval stage 5 to megalops	30/20	7	7.39 4.43 3.42	2.41	71% G, 90% S	2.871	4.3	This report; Poucher & Coiro, 1999
Dyspanopeus sayi	Say mud crab	<48 hr old	30-32/25	8	6.81	4.21 3.40 2.41 1.55	33% G 50% G 53% G, 22% S 73% S (no growth)	5.354	NA	This report
Dyspanopeus sayi	Say mud crab	larval stage 1 to 3	30-31/25-26	7	6.68 5.34 4.33 3.31	2.45 1.47	53% G 97% S (no growth)	2.848	NA	This report
Dyspanopeus sayi	Say mud crab	larval stage 1 to 3	32/20	7	7.65	3.39 2.63 2.36 1.79 1.34	48% G 53% G, 45% S 71% G, 61% S 74% G, 70% S 100% S	5.092	NA	This report

Species	Common name	Initial life stage	Salinity (ppt)/ Temperature (/C)	Duration (days)	Control & NOEC[a] (mg/L)	OEC[a] (mg/L)	Effect (% reduction)[b]	Chronic Value (mg/L)	Growth IC25[a] (mg/L)	Reference
Dyspanopeus sayi	Say mud crab	larval stage 1 to 3	31/20	7	7.21 5.49 4.46	3.51 2.38 1.38	68% G 94% G, 57% S 100% S	3.957	4.5	This report; Poucher & Coiro, 1999
Dyspanopeus sayi	Say mud crab	larval stage 3 to 4	29/20	7	7.11 6.27	5.00 3.99 3.19 2.34	14% G 34% G 44% G 73% G	5.599	4.5	This report; Poucher & Coiro, 1999
Dyspanopeus sayi	Say mud crab	larval stage 3 to megalops	31/25	4	6.76 5.44	4.40 3.40 2.36 1.30	32% G 62% G 74% G 100% S	4.892	4.8	This report; Poucher & Coiro, 1999
Dyspanopeus sayi	Say mud crab	larval stage 3 to megalops	30-32/23-26	8	6.96 5.78	4.68 3.81 2.79 1.83	34% S 82% S 90% S, 61% G* 98% S (no growth)	5.201	NA	This report
Dyspanopeus sayi	Say mud crab	larval stage 3 to megalops	32/25	10	7.03 5.47	4.40 3.29 2.49 1.36	33% G 53% G 66% G, 80% S 100% S	4.906	4.7	This report; Poucher & Coiro, 1999
Dyspanopeus sayi	Say mud crab	larval stage 3 to megalops	29/20	11	7.54	3.23 2.54 2.14 1.63 1.40	67% G 68% G, 61% S 72% G, 87% S 99% G, 98% S 100% S	4.935	NA	This report
Homarus americanus	American lobster	larval stage 2 to 3	31/18	4	7.7 5.4	3.9, 3.2, 2.5, 1.8	36% G, 49% G, 75% G, 74% S 100% S	4.589	4.6	This report; Poucher & Coiro, 1999

Species	Common name	Initial life stage	Salinity (ppt)/ Temperature (/C)	Duration (days)	Control & NOEC[a] (mg/L)	OEC[a] (mg/L)	Effect (% reduction)[b]	Chronic Value (mg/L)	Growth IC25[a] (mg/L)	Reference
Homarus americanus	American lobster	larval stage 2 to 3	31/20	4	7.4 6.1 5.0	3.7 2.9 2.1	48% G 81% G, 91% S 95% S, G not meas.	4.301	NA	This report
Homarus americanus	American lobster	larval stage 3 to 4	30/19	4	7.7	5.45, 4.06, 3.38, 2.70	19% G 52% G G not meas. 100% S	6.478	4.1	This report; Poucher & Coiro, 1999
Homarus americanus	American lobster	larval stage 3 to 4	31/20	4	7.1 6.0 4.9	3.8 3.1 2.3	52% G 65% G, 45% S 89% G, 82% S	4.315	5.5	This report; Poucher & Coiro, 1999
Homarus americanus	American lobster	larval stage 3 to 4	32/19	6	7.63 5.25	4.22 3.31 2.46 1.63	45% G 46% G 99% G 100% S	4.707	4.2	This report; Poucher & Coiro, 1999
Homarus americanus	American lobster	postlarval stage 4 to 5	30/19	20	7.51	3.45 2.22 1.59 1.13	16% G 49% G 84% G, 21% S 100% S	5.090	3.2	This report; Poucher & Coiro, 1999
Homarus americanus	American lobster	juvenile, stage 5 to 6	30/17	27	7.6 3.5	1.53	91% G	2.314	3.1	This report; Poucher & Coiro, 1999
Homarus americanus	American lobster	juvenile, stage 5 to 6	31/18	29	7.61	3.54 2.25	13% G 49% G	5.190	3.0	This report; Poucher & Coiro, 1999
Labinia dubia	longnose spider crab	larval stage 1	32/21	7	7.34, 5.30	4.11 3.21 2.23 1.61	43% G 55% G 61% G 83% G, 36% S	4.667	4.9	This report; Poucher & Coiro, 1999
Mercenaria mercenaria	hardshell clam	embryos	28-30/25	14	5.6 4.2	2.4 0.9	82% G 82% G	3.175	NA	Morrison, 1971

Species	Common name	Initial life stage	Salinity (ppt)/ Temperature (/C)	Duration (days)	Control & NOEC[a] (mg/L)	OEC[a] (mg/L)	Effect (% reduction)[b]	Chronic Value (mg/L)	Growth IC25[a] (mg/L)	Reference
Palaemonetes vulgaris	marsh grass shrimp	newly hatched	32/25	8	6.71	3.42, 2.34, 1.80	21% G 56% G, 24% S 75% G, 77% S	4.790	NA	This report
Palaemonetes vulgaris	marsh grass shrimp	< 16 hr old	31/25	7	6.72, 5.40	3.77, 3.28, 2.67, 2.05	15% G 29% G 40% G 66% G, 61% S	4.512	3.4	This report; Poucher & Coiro, 1999
Palaemonetes vulgaris	marsh grass shrimp	<16 hr old	29-31/25-26	8	6.94	3.20 2.25 1.60	28% G 59% G, 82% S 100% S	4.713	NA	This report
Palaemonetes vulgaris	marsh grass shrimp	larval stage 1 to 3	30-32/29-30	7	6.14, 3.81, 3.39, 2.85, 2.30	1.56	91% G, 97% S	1.894	NA	This report
Palaemonetes vulgaris	marsh grass shrimp	postlarval	31/25	12	6.69, 3.57	2.59 1.59	30% G 69% G	3.041	2.9	This report; Poucher & Coiro, 1999
Palaemonetes vulgaris	marsh grass shrimp	postlarval	30/24	12	6.70, 3.42	2.17	31% G	2.724	2.5	This report; Poucher & Coiro, 1999
Palaemonetes vulgaris	marsh grass shrimp	postlarval	30-32/25-26	14	6.81 3.50 2.50	1.51	63% G	1.943	NA	This report

Species	Common name	Initial life stage	Salinity (ppt)/ Temperature (/C)	Duration (days)	Control & NOEC[a] (mg/L)	OEC[a] (mg/L)	Effect (% reduction)[b]	Chronic Value (mg/L)	Growth IC25[a] (mg/L)	Reference
				Fish						
Cyprinodon variegatus	sheepshead minnow	larval	32/21	7	7.5	2.0 1.7 1.2 0.8 0.4	38% G 40% G 67% G 86% G 76% S (no growth)	>2.0		This report
Cyprinodon variegatus	sheepshead minnow	larval	31/21	14	7.2 5.4 4.5 3.4 2.5	1.5	58% G	1.936	2.3	This report; Poucher & Coiro, 1999
Menidia menidia	Atlantic silverside	embryo	30-32/20-23	28	7.2, 4.8	3.9 2.8 2.4 2.0	24% G*, 48% S 92% S (no growth) 100% S 100% S	3.305		Poucher 1988b
Morone saxatilis	striped bass	juveniles	31/20-22	21	7.3 5.0 4.1 3.5 3.1 2.8		No effect on survival or growth at lowest conc. tested.	<2.8		This report
Paralichthys dentatus	summer flounder	newly metamorphosed	30-31/19-20	10	7.4, 4.4	1.8	26% G	2.814		This report
Paralichthys dentatus	summer flounder	newly metamorphosed	31/20	14	7.27 4.53	3.53 2.66 1.72	19% G 29% G 55% G, 31% S	3.999	4.0	This report; Poucher & Coiro, 1999
Paralichthys dentatus	summer flounder	newly metamorphosed	31/20	14	7.24 4.39	3.39 2.67 1.78	21% G 22% G 55% G	3.858	2.5	This report; Poucher & Coiro, 1999

Species	Common name	Initial life stage	Salinity (ppt)/ Temperature (/C)	Duration (days)	Control & NOEC[a] (mg/L)	OEC[a] (mg/L)	Effect (% reduction)[b]	Chronic Value (mg/L)	Growth IC25[a] (mg/L)	Reference
Paralichthys dentatus	summer flounder	newly metamorphosed	30-32/19/21	14	7.23	4.49	27% G	5.698		This report
						2.25	34% G			
						1.77	50% G, 27% S			

[a]NOEC=No Observed Effect Concentration; OEC=Observed Effect Concentration; IC25=25% Inhibition Concentration.
[b]Effect is percentage reduction relative to controls: S=survival, G=growth (dry weight change), R=reproduction. An asterisk means that the effect was not statistically significant.
[c]NA=not applicable.