**APPENDIX 2-6. Carbaryl Species Sensitivity Distribution Analysis for Aquatic Invertebrates**

SSDs were fit to test results for aquatic invertebrates exposed to carbaryl. The aquatic invertebrate dataset was separated into two groups (non-mollusk and mollusk; freshwater and saltwater species data were pooled together for the two different groups). Four distributions were used to fit the pooled results.

For non-mollusks and mollusks, the logistic and triangular distribution provided the best fit for the datasets, respectively. This decision was based on the AICc weight, CVs and confidence limits for the different distributions. Summary statistics from the fitted SSDs are provided below in **Table** **1**. Detailed results follow.

**Table 1. Summary statistics for SSDs fit to carbaryl test results.**

|  |  |  |
| --- | --- | --- |
| Statistic | All non-molluskInvertebrates | Mollusks |
| CV of the HC05 | 0.51 | 0.24 |
| HC05 | 1.6 | 6600 |
| HC50 | 140 | 19000 |
| HC95 | 12000 | 54000 |
| Mortality Thresh.1 (slope = 4.5) | 0.14 | 580 |
| Indirect Effects Threshold1 (slope = 4.5) | 0.81 | 3400 |

1  Slope = default slope of 4.5 used as no slope was available for species near the HC05.

# Data

Data used in this analysis are from literature that passed the ECOTOX quality screen (catalogued in **APPENDIX 2-2**) plus data from submitted studies and are detailed in **Table** **7** and **8** (end of document). The EC/LC50 values that were included in the analysis were all mortality or immobility endpoints from either 48 or 96-hour tests with technical grade active ingredient. **Table** **2** provides the distribution of the test results and the number of species represented.

**Table 2. Distribution of test results available for carbaryl.**

|  |  |  |
| --- | --- | --- |
| Media | Test results | Species |
| All | 379 | 68 |
| Mollusk | 37 | 15 |
| Non-mollusk | 342 | 53 |

**Figure 1** shows the distribution of test results among subsets of invertebrate test results. In general, most species have been tested once or twice, with only four species tested more than 10 times.

**Figure 1. Distribution of test results among taxa in all carbaryl test results.**

Four potential distributions for the carbaryl data were considered (log-normal, log-logistic, log-triangular, log-gumbel,). To fit each of the four distributions, the toxicity values were common log (log10) transformed. An evaluation for fitting separate distributions using Akaike’s information criterion (AICc) was conducted. Finally, direct and indirect effect thresholds and report quantiles from the fitted SSDs (e.g., HC05, HC50, HC95) were calculated.

# Comparison of distributions using AICc

Akaike’s Information Criterion corrected for sample size (AICc) was used to compare the four distributions for both datasets (mollusk and non-mollusk). For this comparison all SSDs were fit using maximum likelihood (**Table 3 and 4**).

**Table 3. Comparison of distributions for all aquatic non-mollusk invertebrate toxicity data for carbaryl.**



**Table 4. Comparison of distributions for all aquatic mollusk invertebrate toxicity data for carbaryl.**



# Distributions

The cumulative distribution functions for the full SSDs is presented in **Figure 2** and **3** below.



**Figure 2. Log-logistic SSD for Carbaryl toxicity values for all aquatic non-mollusk invertebrates.**



**Figure 3. Log-triangular SSD for Carbaryl toxicity values for all aquatic mollusk invertebrates.**

# Goodness of fit

Finally, to test goodness-of-fit, all four distributions for carbaryl were fit and ran bootstrap goodness-of-fit tests with 10,000 bootstrap replicates. Maximum likelihood (ML) was used. The results of these fitting exercises are presented below. (**Table 5 and 6**).

**Table 5. Range of HC05 values for carbaryl SSDs fit to all non-mollusk invertebrates.**



LCp and UCp=projections of the confidence limits of the HC05 (LCx and UCx) onto the cumulative distribution functions of the fitted distribution.

**Table 6. Range of HC05 values for carbaryl SSDs fit to all mollusk invertebrates.**



LCp and UCp=projections of the confidence limits of the HC05 (LCx and UCx) onto the cumulative distribution functions of the fitted distribution.

# Calculation of other quantiles

For non-mollusks, the HC50 and HC95 values were 0.140 and 12 mg/L, respectively, based on the logistic distribution. For mollusks, the HC50 and HC95 values were 19 and 54 mg/L, respectively, based on the triangular distribution.

# Determination of thresholds

HC05 values from the most appropriate distribution and method were used as the thresholds for mollusks and non-mollusks. The threshold for mollusks is the HC05 value 6600 µg ai/L, based on the triangular distribution and maximum likelihood (ML) method. The threshold for non-mollusks is the HC05 value 1.6 µg ai/L, based on the logistic distribution and ML method.

**Table 7** provides all of the available EC/LC50 values (based on immobility and mortality) for non-mollusk aquatic invertebrates (within the 24- or 48-hour timeframe unless otherwise noted). These data sets are the same as reported in the effects characterization. The dataset contained 53 species.

**Table 7. Distribution of test results available for carbaryl for non-mollusks.**

| **Species** | **Acute LC50 value (mg/L)** | **Reference** |
| --- | --- | --- |
| Aedes aegypti | 0.42 | 116328 |
| Aedes aegypti | 0.56 | 101154 |
| Aedes aegypti | 0.66 | 101154 |
| Aedes aegypti | 1.62 | 170313 |
| Aedes albopictus | 0.83 | 87671 |
| Aedes caspius | 4.79 | 13544 |
| Aedes sollicitans | 0.525 | 119693 |
| Aedes sollicitans | 0.71 | 119693 |
| Ameletus sp. | 0.008772 | 62451 |
| Americamysis bahia | 0.0057 | MRID 42343401 |
| Americamysis bahia | 0.0077 | 4891 |
| Americamysis bahia | 0.00845 | 115740 |
| Americamysis bahia | 0.00846 | 115740 |
| Americamysis bahia | 0.00884 | 115740 |
| Americamysis bahia | 0.0091 | 115740 |
| Americamysis bahia | 0.019 | 115739 |
| Americamysis bahia | 0.019 | 115739 |
| Americamysis bahia | 0.019 | 115739 |
| Americamysis bahia | 0.021 | 115739 |
| Anopheles albimanus | 0.89 | 11596 |
| Anopheles pharoensis | 0.6 | 100907 |
| Anopheles stephensi | 0.3425 | 109633 |
| Anopheles stephensi | 0.45 | 101154 |
| Anopheles stephensi | 0.53 | 101154 |
| Anopheles stephensi | 0.72 | 11799 |
| Arbacia punctulata | 4.7 | 115739 |
| Artemia salina | 0.350131 | 20076 |
| Artemia salina | 5.916009 | 20076 |
| Artemia salina | 27.5678 | 20076 |
| Austrolestes colensonis | 3.1309 | 67674 |
| Barytelphusa cunicularis | 9.55 | 88807 |
| Barytelphusa cunicularis | 9.65 | 88807 |
| Barytelphusa cunicularis | 9.75 | 88807 |
| Bosmina fatalis | 0.004075 | 81396 |
| Bosmina longirostris | 0.008597 | 81396 |
| Brachionus calyciflorus | 4.1 | 160585 |
| Brachycentrus americanus | 0.017716 | 62451 |
| Caecidotea brevicauda | 0.24 | 887 |
| Caecidotea brevicauda | 0.28 | 6797 |
| Caecidotea brevicauda | 0.32 | 887 |
| Caecidotea brevicauda | 0.34 | 6797 |
| Calineuria californica | 0.007439 | 62451 |
| Calineuria californica | 0.01075 | 62451 |
| Calineuria californica | 0.0129 | 62451 |
| Calineuria californica | 0.489942 | 62450 |
| Calineuria californica | 0.7439 | 62450 |
| Cambarus bartonii | 0.7 | 19508 |
| Cambarus bartonii | 0.7 | 19508 |
| Cambarus bartonii | 0.94 | 19508 |
| Cambarus bartonii | 2.23 | 19508 |
| Cambarus bartonii | 2.24 | 19508 |
| Cambarus bartonii | 2.41 | 19508 |
| Cambarus bartonii | 2.9 | 19508 |
| Cancer magister | 0.6 | 4825 |
| Cancer magister | 0.63 | 4825 |
| Ceriodaphnia dubia | 0.00306 | 17138 |
| Ceriodaphnia dubia | 0.0116 | 3590 |
| Ceriodaphnia dubia | 0.1 | 81810 |
| Ceriodaphnia reticulata | 0.00225 | 154905 |
| Cheumatopsyche brevilineata | 0.0214 | 152279 |
| Cheumatopsyche sp. | 0.0594 | 171507 |
| Chironomus riparius | 0.061 | 2993 |
| Chironomus riparius | 0.071 | 2993 |
| Chironomus riparius | 0.072 | 2993 |
| Chironomus riparius | 0.086 | 2993 |
| Chironomus riparius | 0.086 | 2993 |
| Chironomus riparius | 0.096 | 3278 |
| Chironomus riparius | 0.096 | 2993 |
| Chironomus riparius | 0.102 | 18935 |
| Chironomus riparius | 0.102 | 2993 |
| Chironomus riparius | 0.1045 | 6830 |
| Chironomus riparius | 0.107 | 2993 |
| Chironomus riparius | 0.107 | 3278 |
| Chironomus riparius | 0.11 | 2993 |
| Chironomus riparius | 0.11 | 2993 |
| Chironomus riparius | 0.11 | 18935 |
| Chironomus riparius | 0.115 | 2993 |
| Chironomus riparius | 0.119 | 2993 |
| Chironomus riparius | 0.12 | 2993 |
| Chironomus riparius | 0.125 | 2993 |
| Chironomus riparius | 0.128 | 3278 |
| Chironomus riparius | 0.128 | 2993 |
| Chironomus riparius | 0.133 | 2993 |
| Chironomus riparius | 0.133 | 2993 |
| Chironomus riparius | 0.144 | 2993 |
| Chironomus riparius | 0.442 | 18935 |
| Chironomus tentans | 0.0016 | 6267 |
| Chironomus tentans | 0.0042 | 6267 |
| Chironomus tentans | 0.007 | 6267 |
| Chironomus tentans | 5.9 | 7796 |
| Chironomus tentans | 12 | 7796 |
| Chironomus tentans | 18 | 7796 |
| Chironomus tentans | 18 | 7796 |
| Chloroperla grammatica | 0.0017 | MRID 40098001 |
| Chydorus sphaericus | 0.01002 | 154905 |
| Cinygma sp. | 0.004773 | 62451 |
| Cinygma sp. | 0.07095 | 62450 |
| Cinygma sp. | 0.08772 | 62450 |
| Cinygma sp. | 0.08772 | 62450 |
| Cinygma sp. | 0.0946 | 62450 |
| Cinygma sp. | 0.17544 | 62450 |
| Cinygma sp. | 0.17544 | 62450 |
| Cinygma sp. | 0.17544 | 62450 |
| Cinygma sp. | 0.36464 | 62450 |
| Cinygma sp. | 0.4386 | 62450 |
| Cinygma sp. | 0.4386 | 62450 |
| Cinygma sp. | 0.4386 | 62450 |
| Cinygma sp. | 0.4386 | 62450 |
| Claassenia sabulosa | 0.0056 | 6797 |
| Claassenia sabulosa | 0.012 | 6797 |
| Culex fatigans | 0.24 | 101154 |
| Culex fatigans | 0.69 | 101154 |
| Culex pipiens | 0.5 | 103319 |
| Culex pipiens | 0.54 | 103319 |
| Culex pipiens | 0.69 | 103319 |
| Culex pipiens | 0.86 | 103319 |
| Culex pipiens | 32.8 | 61088 |
| Culex pipiens | 77.9 | 103319 |
| Culex pipiens | 100 | 103319 |
| Culex pipiens ssp. molestus | 4.56 | 13544 |
| Culex quinquefasciatus | 0.2 | 63336 |
| Culex quinquefasciatus | 0.3794 | 119438 |
| Culex quinquefasciatus | 0.701 | 61088 |
| Culex quinquefasciatus | 1.27 | 63336 |
| Culex tarsalis | 0.172 | 94524 |
| Culex tarsalis | 0.315 | 94524 |
| Cypretta kawatai | 1.8 | 7796 |
| Cypretta kawatai | 1.8 | 7796 |
| Cypretta kawatai | 4.45 | 7796 |
| Cypretta kawatai | 5.28 | 7796 |
| Cypridopsis vidua | 0.115 | 6797 |
| Cypridopsis vidua | 1.92 | 6797 |
| Daphnia carinata | 0.035 | 5194 |
| Daphnia carinata | 0.1 | 5194 |
| Daphnia galeata | 0.01132 | 154905 |
| Daphnia magna | 0.00066 | 5539 |
| Daphnia magna | 0.0056 | 6797 |
| Daphnia magna | 0.006 | 120562 |
| Daphnia magna | 0.0066 | 120562 |
| Daphnia magna | 0.007 | 171521 |
| Daphnia magna | 0.0072 | 171521 |
| Daphnia magna | 0.0073 | 120562 |
| Daphnia magna | 0.0078 | 171521 |
| Daphnia magna | 0.0078 | 120562 |
| Daphnia magna | 0.0078 | 171521 |
| Daphnia magna | 0.0079 | 171521 |
| Daphnia magna | 0.0082 | 171521 |
| Daphnia magna | 0.0083 | 120562 |
| Daphnia magna | 0.009 | 171521 |
| Daphnia magna | 0.009 | 171521 |
| Daphnia magna | 0.0093 | 171521 |
| Daphnia magna | 0.0093 | 120562 |
| Daphnia magna | 0.0094 | 171521 |
| Daphnia magna | 0.0095 | 5370 |
| Daphnia magna | 0.0095 | 120562 |
| Daphnia magna | 0.0096 | 171521 |
| Daphnia magna | 0.0097 | 171521 |
| Daphnia magna | 0.0098 | 120562 |
| Daphnia magna | 0.0098 | 171521 |
| Daphnia magna | 0.0099 | 171521 |
| Daphnia magna | 0.01 | 171521 |
| Daphnia magna | 0.01 | 120562 |
| Daphnia magna | 0.0101 | 17138 |
| Daphnia magna | 0.0102 | 171521 |
| Daphnia magna | 0.0102 | 171521 |
| Daphnia magna | 0.0108 | 171521 |
| Daphnia magna | 0.0117 | 171521 |
| Daphnia magna | 0.0119 | 171521 |
| Daphnia magna | 0.012 | 96171 |
| Daphnia magna | 0.012 | 9659 |
| Daphnia magna | 0.0125 | 120562 |
| Daphnia magna | 0.0136 | 171521 |
| Daphnia magna | 0.021 | 17714 |
| Daphnia magna | 0.23 | 55506 |
| Daphnia magna | 1 | 6191 |
| Daphnia magna | 1.9 | 50679 |
| Daphnia magna | 1.9 | 81810 |
| Daphnia magna | 2 | 6191 |
| Daphnia magna | 5.4 | 50679 |
| Daphnia magna | 7.47 | 171508 |
| Daphnia magna | 12.76 | 171508 |
| Daphnia obtusa | 0.0115 | 20191 |
| Daphnia obtusa | 0.015 | 20191 |
| Daphnia pulex | 0.0064 | 6797 |
| Diaphanosoma brachyurum | 0.00565 | 154905 |
| Echinogammarus tibaldii | 0.0065 | 18621 |
| Eretes sticticus | 0.89 | 5182 |
| Eretes sticticus | 0.91 | 5182 |
| Gammarus fasciatus | 0.026 | 6797 |
| Gammarus fasciatus | 0.05 | 6797 |
| Gammarus italicus | 0.028 | 18621 |
| Gammarus lacustris | 0.022 | 6797 |
| Gammarus lacustris | 0.04 | 6797 |
| Gammarus pseudolimnaeus | 0.007 | 6797 |
| Gammarus pseudolimnaeus | 0.0072 | 6797 |
| Gammarus pseudolimnaeus | 0.0078 | 6797 |
| Gammarus pseudolimnaeus | 0.008 | 6797 |
| Gammarus pseudolimnaeus | 0.0105 | 6797 |
| Gammarus pseudolimnaeus | 0.0115 | 6797 |
| Gammarus pseudolimnaeus | 0.0126 | 6797 |
| Gammarus pseudolimnaeus | 0.013 | 6797 |
| Gammarus pseudolimnaeus | 0.019 | 6797 |
| Gammarus pseudolimnaeus | 0.022 | 6797 |
| Hemigrapsus oregonensis | 0.27 | 4825 |
| Hemigrapsus oregonensis | 0.71 | 4825 |
| Homarus americanus | 0.02089 | 115741 |
| Homarus americanus | 0.02089 | 115741 |
| Homarus americanus | 0.02313 | 115741 |
| Homarus americanus | 0.03873 | 115741 |
| Hyalella azteca | 0.006 | 52121 |
| Hyalella azteca | 0.0065 | 52121 |
| Hyalella azteca | 0.007 | 52121 |
| Hyalella azteca | 0.0105 | 52121 |
| Hyalella azteca | 0.0115 | 52121 |
| Hyalella azteca | 0.0125 | 52121 |
| Hyalella azteca | 0.0151 | 52121 |
| Hyalella azteca | 0.0152 | 52121 |
| Hyalella azteca | 0.0156 | 52121 |
| Hyalella azteca | 0.0183 | 52121 |
| Hydropsyche sp. | 0.0594 | 171507 |
| Isogenus sp. | 0.0028 | 6797 |
| Isogenus sp. | 0.0036 | 6797 |
| Isogenus sp. | 0.0066 | 6797 |
| Isogenus sp. | 0.0066 | 6797 |
| Isogenus sp. | 0.008 | 6797 |
| Isogenus sp. | 0.008 | 6797 |
| Isogenus sp. | 0.0087 | 6797 |
| Isogenus sp. | 0.009 | 6797 |
| Isogenus sp. | 0.0092 | 6797 |
| Isogenus sp. | 0.012 | 6797 |
| Isogenus sp. | 0.015 | 6797 |
| Isogenus sp. | 0.015 | 6797 |
| Lecane quadridentata | 13.72 | 171514 |
| Lepidostoma unicolor | 0.01247 | 62451 |
| Leptodora kindtii | 0.00126 | 171510 |
| Leptodora kindtii | 0.00197 | 171510 |
| Leptodora kindtii | 0.001998 | 81396 |
| Leptodora kindtii | 0.003605 | 81396 |
| Leptodora kindtii | 0.00462 | 171510 |
| Leptodora kindtii | 0.00619 | 171510 |
| Leptodora kindtii | 0.00664 | 171510 |
| Leptodora kindtii | 0.00846 | 171510 |
| Litopenaeus stylirostris | 0.0298 | 73317 |
| Lumbriculus variegatus | 8.2 | 6502 |
| Lumbriculus variegatus | 13 | 6502 |
| Macrobrachium lamarrei | 0.019 | 11541 |
| Macrobrachium lamarrei | 0.024 | 11541 |
| Macrobrachium lamarrei | 0.027 | 11541 |
| Macrobrachium lamarrei | 0.033 | 11541 |
| Macrobrachium lar | 0.0283 | 157374 |
| Macrobrachium lar | 0.0486 | 157374 |
| Mesocyclops sp. | 1.715 | 100488 |
| Metapenaeus monoceros | 0.02487 | 17176 |
| Metapenaeus monoceros | 0.137 | 3724 |
| Moina macrocopa | 0.10321 | 154905 |
| Moina micrura | 0.1196 | 87649 |
| Monostyla quadridentata | 0.112 | 16799 |
| Mysis relicta | 0.23 | 18931 |
| Mysis relicta | 0.4 | 18931 |
| Mysis relicta | 0.55 | 18931 |
| Neotrypaea californiensis | 0.03 | 4825 |
| Neotrypaea californiensis | 0.08 | 4825 |
| Neotrypaea californiensis | 0.13 | 4825 |
| Neotrypaea californiensis | 0.47 | 4825 |
| Notonecta undulata | 0.2 | 7775 |
| Notonecta undulata | 0.23 | 7775 |
| Notonecta undulata | 0.36 | 7775 |
| Orconectes nais | 0.0086 | 887 |
| Orconectes nais | 0.034 | 887 |
| Orconectes nais | 1 | 887 |
| Orconectes nais | 2.9 | 887 |
| Orconectes virilis | 1.61 | 19508 |
| Orconectes virilis | 1.89 | 19508 |
| Orthetrum albistylum ssp. Speciosum | 0.43 | 7119 |
| Orthetrum albistylum ssp. speciosum | 0.55 | 7119 |
| Orthetrum albistylum ssp. speciosum | 0.55 | 7119 |
| Orthetrum albistylum ssp. speciosum | 3 | 7119 |
| Orthetrum albistylum ssp. speciosum | 3.7 | 7119 |
| Orthetrum albistylum ssp. speciosum | 5.5 | 7119 |
| Palaemonetes kadiakensis | 0.0056 | 6797 |
| Palaemonetes kadiakensis | 0.12 | 6797 |
| Palaemonetes pugio | 0.022 | 115739 |
| Palaemonetes pugio | 0.022 | 115739 |
| Palaemonetes pugio | 0.031 | 115739 |
| Palaemonetes pugio | 0.04302 | 112130 |
| Palaemonetes pugio | 0.076 | 115739 |
| Paramecium aurelia | 46 | 11588 |
| Paramecium bursaria | 31 | 11588 |
| Paramecium caudatum | 10 | 11588 |
| Paramecium multimicronucleatum | 24 | 11588 |
| Paratya australiensis | 0.012 | 121117 |
| Peltodytes sp. | 3.3 | 7775 |
| Peltodytes sp. | 6 | 7775 |
| Peltodytes sp. | 25 | 7775 |
| Peltodytes sp. | 100 | 7775 |
| Penaeus aztecus | 0.0015 | 3947 |
| Pontoporeia hoyi | 0.25 | 18931 |
| Pontoporeia hoyi | 0.29 | 18931 |
| Pontoporeia hoyi | 0.37 | 18931 |
| Pontoporeia hoyi | 0.46 | 18931 |
| Procambarus clarkia | 0.74 | 4678 |
| Procambarus sp. | 1.9 | 6797 |
| Procambarus sp. | 4 | 6797 |
| Psychoglypha sp. | 0.013029 | 62451 |
| Psychoglypha sp. | 0.02623 | 62451 |
| Pteronarcella badia | 0.0017 | 6797 |
| Pteronarcella badia | 0.005 | 6797 |
| Pteronarcella badia | 0.011 | 6797 |
| Pteronarcella badia | 0.013 | 6797 |
| Pteronarcella badia | 0.018 | 6797 |
| Pteronarcella badia | 0.019 | 6797 |
| Pteronarcella badia | 0.029 | 6797 |
| Pteronarcella badia | 0.032 | 6797 |
| Pteronarcys californica | 0.0048 | 6797 |
| Pteronarcys californica | 0.03 | 6797 |
| Ranatra elongate | 0.624 | 4596 |
| Scapholeberis kingi | 0.11476 | 154905 |
| Simocephalus serrulatus | 0.0076 | 6797 |
| Simocephalus serrulatus | 0.0081 | 6797 |
| Simocephalus serrulatus | 0.011 | 6797 |
| Simocephalus vetulus | 0.01424 | 154905 |
| Simulium vittatum | 0.02372 | 71060 |
| Simulium vittatum | 0.04776 | 152234 |
| Spicodiaptomus chelospinus | 0.13 | 5264 |
| Spicodiaptomus chelospinus | 0.24 | 5264 |
| Spirostomum ambiguum | 12.9 | 69821 |
| Spirostomum teres | 3.34 | 20057 |
| Tubifex tubifex | 0.05 | 17386 |
| Uca minax | 0.027 | 4624 |
| Uca minax | 0.135 | 4624 |
| Uca minax | 0.27 | 4624 |
| Upogebia pugettensis | 0.04 | 4825 |
| Upogebia pugettensis | 0.04 | 4825 |
| Upogebia pugettensis | 0.09 | 4825 |
| Upogebia pugettensis | 0.13 | 4825 |
| Xanthocnemis zealandica | 0.1566 | 171567 |
| Xanthocnemis zealandica | 0.3818 | 171567 |
| Xanthocnemis zealandica | 0.4377 | 171567 |
| Xanthocnemis zealandica | 0.6 | 67674 |
| Xanthocnemis zealandica | 0.6 | 171567 |
| Xanthocnemis zealandica | 0.76 | 171567 |
| Xanthocnemis zealandica | 0.77 | 171567 |

**Table 8** provides all of the available EC/LC50 values (based on immobility and mortality) for mollusk aquatic invertebrates (within the 24- or 48-hour timeframe unless otherwise noted). These data sets are the same as reported in the effects characterization. The dataset contained 15 species.

**Table 8. Distribution of test results available for carbaryl for mollusks.**

| **Species** | **Acute LC50 value (mg/L)** | **Reference** |
| --- | --- | --- |
| Anodonta imbecillis | 23.7 | 50679 |
| Anodonta imbecillis | 25.6 | 50679 |
| Anodonta imbecillis | 30.1 | 50679 |
| Bellamya bengalensis | 4.32 | 4953 |
| Bellamya bengalensis | 9.02 | 4953 |
| Bellamya bengalensis | 9.6 | 4953 |
| Bellamya bengalensis | 13.5 | 4953 |
| Biomphalaria alexandrina | 47 | 6332 |
| Clinocardium nuttallii | 3.08 | 17741 |
| Clinocardium nuttallii | 3.08 | 171590 |
| Clinocardium nuttallii | 3.2 | 17741 |
| Clinocardium nuttallii | 3.2 | 171590 |
| Clinocardium nuttallii | 7.3 | 4825 |
| Clinocardium nuttallii | 8 | 17741 |
| Clinocardium nuttallii | 8 | 17741 |
| Clinocardium nuttallii | 8 | 171590 |
| Clinocardium nuttallii | 8 | 171590 |
| Corbicula sp. | 5.1 | 18189 |
| Corbicula sp. | 16.6 | 18189 |
| Corbicula sp. | 49.2 | 18189 |
| Corbicula sp. | 67.01 | 18189 |
| Lampsilis cardium | 33.9 | 81810 |
| Lampsilis siliquoidea | 31.1 | 81810 |
| Leptodea fragilis | 9.1 | 81810 |
| Ligumia subrostrate | 43.1 | 81810 |
| Lymnaea acuminata | 4.5 | 917 |
| Lymnaea acuminata | 5.6 | 917 |
| Lymnaea acuminata | 14 | 917 |
| Megalonaias nervosa | 27.4 | 81810 |
| Mytilus edulis | 22.7 | 8127 |
| Pila globose | 36.5 | 917 |
| Pila globose | 41 | 917 |
| Pila globose | 48.5 | 917 |
| Pila globose | 58 | 917 |
| Pomacea patula | 14.6 | 52354 |
| Utterbackia imbecillis | 7.9 | 74236 |
| Utterbackia imbecillis | 40.2 | 81810 |