Pesticide Toxicity Index for Freshwater Aquatic Organisms, 2nd Edition

By Mark D. Munn, Robert J. Gilliom, Patrick W. Moran, and Lisa H. Nowell

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FOREWORD

The U.S. Geological Survey (USGS) is committed to providing the Nation with accurate and timely scientific information that helps enhance and protect the overall quality of life and that facilitates effective management of water, biological, energy, and mineral resources (*http://www.usgs.gov/*). Information on the quality of the Nation's water resources is critical to assuring the long-term availability of water that is safe for drinking and recreation and suitable for industry, irrigation, and habitat for fish and wildlife. Population growth and increasing demands for multiple water uses make water availability, now measured in terms of quantity and quality, even more essential to the long-term sustainability of our communities and ecosystems.

The USGS implemented the National Water-Quality Assessment (NAWQA) Program in 1991 to support national, regional, and local information needs and decisions related to water-quality management and policy (*http://water.usgs.gov/nawqa*). Shaped by and coordinated with ongoing efforts of other Federal, State, and local agencies, the NAWQA Program is designed to answer: What is the condition of our Nation's streams and ground water? How are the conditions changing over time? How do natural features and human activities affect the quality of streams and ground water, and where are those effects most pronounced? By combining information on water chemistry, physical characteristics, stream habitat, and aquatic life, the NAWQA Program aims to provide science-based insights for current and emerging water issues and priorities.

From 1991-2001, the NAWQA Program completed interdisciplinary assessments in 51 of the Nation's major river basins and aquifer systems, referred to as Study Units (*http://water.usgs.gov/nawqa/studyu.html*). Baseline conditions were established for comparison to future assessments, and long-term monitoring was initiated in many of the basins. During the next decade, 42 of the 51 Study Units will be reassessed so that 10 years of comparable monitoring data will be available to determine trends at many of the Nation's streams and aquifers. The next 10 years of study also will fill in critical gaps in characterizing water-quality conditions, enhance understanding of factors that affect water quality, and establish links between sources of contaminants, the transport of those contaminants through the hydrologic system, and the potential effects of contaminants on humans and aquatic ecosystems.

The USGS aims to disseminate credible, timely, and relevant science information to inform practical and effective water-resource management and strategies that protect and restore water quality. We hope this NAWQA publication will provide you with insights and information to meet your needs, and will foster increased citizen awareness and involvement in the protection and restoration of our Nation's waters.

The USGS recognizes that a national assessment by a single program cannot address all water-resource issues of interest. External coordination at all levels is critical for a fully integrated understanding of watersheds and for cost-effective management, regulation, and conservation of our Nation's water resources. The NAWQA Program, therefore, depends on advice and information from other agencies—Federal, State, interstate, Tribal, and local—as well as nongovernmental organizations, industry, academia, and other stakeholder groups. Your assistance and suggestions are greatly appreciated.

Robert M. Hirsch

Associate Director for Water

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ACRONYMS AND ABBREVIATIONS (additional information given in parentheses)

AQUIRE	AQUatic Toxicity Information REtrieval (EPA database)
BCF	bioconcentration factor
CAS	Chemical Abstracts Service (American Chemical Society)
CRS	chemical ranking and scoring (system)
EC	effect concentration (sublethal response)
EC_{50}	concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization)
ECOTOX	ECOTOXicology (EPA database)
EPA	U.S. Environmental Protection Agency
LC	lethal concentration (mortality)
LC_{50}	concentration at which 50 percent mortality occurred in test organisms
MTC	median toxicity concentration
N	number of bioassays
NAWQA	National Water-Quality Assessment (Program)
NHEERL	National Health and Environmental Effects Research Laboratory
NOEL	no observed effect level
OPP	Office of Pesticide Programs (EPA)
PED	Pesticide Ecotoxicity Database
ppb	parts per billion
PTI	Pesticide Toxicity Index
USGS	U.S. Geological Survey

Pesticide Toxicity Index for Freshwater Aquatic Organisms, 2nd Edition

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Abstract

The U.S. Geological Survey's National Water-Quality Assessment (NAWQA) Program is designed to assess current water-quality conditions, changes in water quality over time, and the effects of natural and human factors on water quality for the Nation's streams and ground-water resources. For streams, one of the most difficult parts of the assessment is to link chemical conditions to effects on aquatic biota, particularly for pesticides, which tend to occur in streams as complex mixtures with strong seasonal patterns.

A Pesticide Toxicity Index (PTI) was developed that combines pesticide exposure of aquatic biota (measured concentrations of pesticides in stream water) with acute toxicity estimates (standard endpoints from laboratory bioassays) to produce a single index value for a sample or site. The development of the PTI was limited to pesticide compounds routinely measured in NAWQA studies and to toxicity data readily available from existing databases. Qualifying toxicity data were found for one or more types of test organisms for 124 of the 185 pesticide compounds measured in NAWQA samples, but with a wide range of available bioassays per compound (1 to 232). In the databases examined, there were a total of 3,669 bioassays for the 124 compounds, including 398 48-hour EC_{50} values (concentration at which 50 percent of test organisms exhibited a sublethal response [an effect on behavior, such as immobilization]) for freshwater cladocerans, 699 96-hour LC_{50} values (concentration at which 50 percent mortality occurred in test organisms) for freshwater benthic invertebrates, and 2,572 96-hour LC_{50} values for freshwater fish. The PTI for a particular sample is the sum of toxicity quotients (measured concentration divided by the median toxicity concentration from bioassays) for each detected pesticide, and thus, is based on the concentration addition model of pesticide toxicity. The PTI can be calculated for specific groups of pesticides and for specific taxonomic groups.

Although the PTI does not determine whether water in a sample is toxic to aquatic organisms, its values can be used to rank or compare the toxicity of samples or sites on a relative basis for use in further analysis or additional assessments. The PTI approach may be useful as a basis for comparing the potential significance of pesticides in different streams on a common basis, for evaluating relations between pesticide exposure and observed biological conditions, and for prioritizing where further studies are most needed.

Introduction

Background

The U.S. Geological Survey's (USGS) National Water-Quality Assessment (NAWQA) Program is designed to assess current water-quality conditions, changes in water quality over time, and the effects of natural and human factors on water quality for the Nation's streams and ground-water resources (Hirsch and others, 1988; Leahy and others, 1990; Gilliom and others, 1995). In 1991, the NAWQA Program began investigating physical, chemical, and biological characteristics of water resources in more than 50 major hydrologic systems in the Nation, referred to as study units. Integrating these different aspects of water quality and understanding cause-and-effect relations is one of the principal challenges. For streams, one of the most difficult parts of the assessment is to link chemical conditions to effects on aquatic biota, particularly for pesticides, which tend to occur in streams as complex mixtures with strong seasonal patterns.

The most common way of assessing the potential effects of pesticides on the aquatic environment in a controlled manner is by standardized laboratory bioassays that expose a single species to a single compound for a predetermined time period at specified concentration levels. Depending on

the effects measured, specific endpoints can be calculated. Common toxicological endpoints include lethal concentrations (LC), effect concentrations that result in a sublethal response (EC), and no observed effect levels (NOEL). Laboratory bioassays are commonly used to assess single compounds for registration, effluent permits, and toxicological research, but laboratory results cannot reliably be extrapolated directly to field conditions. For example, species used in bioassays are rarely the same species that reside in a particular system, tested life-history stages do not include all the exposed life stages, test duration does not match the predicted exposure duration, physical and chemical test conditions are not the same as the expected field conditions, reported responses do not include all the responses of concern, and test endpoints are at a different level of biological organization (organism) than the assessment endpoints (population to ecosystem) (Suter, 1995). However, even with these well-known limitations, bioassays remain a useful tool for quantifying toxicological effects of specific contaminants on aquatic life in a consistent and relatively reproducible manner. Furthermore, standardized bioassay tests are constantly being improved with the development of new tests.

One type of ecological risk-assessment method presently being used to address the complexity of pesticide exposure and effects is chemical ranking and scoring (CRS) systems (Swanson and Socha, 1997), which are based on the potential toxicity of chemicals to the environment or human health. The selection of a particular CRS system depends on the goals of the evaluation, the level of information needed, the degree of acceptable uncertainty, and the available resources. CRS is a tool for assessing chemicals that may incorporate health effects, environmental effects or other hazards, persistence, and exposure. Many CRS systems take a nonrisk-based approach using single endpoints from published toxicity and fate data. A more realistic method, however, is to use a risk-based approach that integrates measured exposure (stream concentrations) with potential biological effects (bioassays) (Davis and others, 1997).

Purpose and Scope

This report describes the development and potential applications of a Pesticide Toxicity Index (PTI) that can be used to evaluate the relative potential toxicity of pesticides to aquatic organisms in streams. The PTI is a variation of a risk-based scoring system described by Kimerle and others (1997). The PTI was developed for use with data collected as part of the NAWQA Program studies of pesticide concentrations in stream water. The PTI can be applied to samples collected at NAWQA sites, and PTI values for individual water samples then can be used to rank stream sites according to their expected relative acute toxicity attributed to pesticides or to assess changes in potential toxicity over time at a single site. PTI values for samples, seasons, or sites also can be used as explanatory variables in multivariate analysis designed to determine which environmental variables best explain spatial patterns in the structure of a biological community.

The first edition of this report (Munn and Gilliom, 2001) contained toxicity data for 75 of the 83 pesticides and degradates analyzed by the NAWQA Program beginning in 1991. Over time, the list of NAWQA pesticide analytes was expanded, so that an additional 102 pesticides or degradates were analyzed for a substantial number of NAWQA sites between 1991 and 2004. This report (second edition) is an update that combines the original PTI data with PTI data for the additional pesticide compounds on NAWQA's expanded target analyte list. Toxicity data were available for 49 of these additional pesticide compounds. Therefore, this second edition contains toxicity data for a total of 124 out of the 185 pesticide compounds analyzed in water samples by the NAWQA program between 1991 and 2004.

Acknowledgments

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Development of the Pesticide Toxicity Index

The PTI is a ranking system that is based on the exposure and acute toxicity of pesticides to freshwater aquatic organisms. The development of the PTI was limited to pesticide compounds routinely measured by the NAWQA Program and to LC_{50} (concentration at which 50 percent mortality occurred in test organisms) and EC_{50} (concentration at which 50 percent of test organisms exhibited a sublethal response [an effect

on behavior, such as immobilization]) toxicity data readily available from existing databases. The LC_{50} and EC_{50} values are referred to as toxicity concentrations.

The PTI is the sum of toxicity quotients for each pesticide compound measured in a stream:

$$PTI_x = \sum_{i=1}^{n} \frac{E_i}{MTC_{x,i}} \quad (1)$$

where

E_i = concentration of pesticide i

$MTC_{x,i}$ = median toxicity concentration for pesticide i for taxonomic group x

n = number of pesticides, and

E and MTC are expressed in the same units.

In most cases, the PTI should be calculated for a single taxonomic group, as appropriate for the specific application.

The PTI is based on the "Concentration Addition Model" of toxicity by which co-occurring pesticides act in an additive manner, with effects on organisms as would be expected by summing the toxicity-normalized concentrations of individual pesticides. As noted by Lydy and Beldon (2006), "Studies of the toxicity of pesticide mixtures have resulted in the full spectrum of additive, synergistic, and antagonistic responses. Generally, pesticides within the same pesticide class and that have similar structures and a common mode of action (for example, organophosphate insecticides) are more likely to follow the additive model, whereas pesticides from different classes have more varied effects." Although simple additivity is unlikely to strictly apply for complex mixtures of pesticides from different classes and with different effects and modes of action, the PTI is likely to be useful as a relative index. Deneer (2000) reported that "for more than 90 percent of 202 mixtures in 26 studies, concentration addition was found to predict effect concentrations within a factor of two."

Pesticides were evaluated for the PTI in two phases (*table 1*), resulting in the first edition (Munn and Gilliom, 2001) and the second edition (this report) of the PTI. Each phase entailed a search of EPA database(s) for aquatic toxicity data for a different list of target pesticides. For the first edition, 76 pesticides and 7 degradation products were evaluated in 2000. These pesticides and degradates were analyzed at most NAWQA stream sites during 1992–2001. For the second edition, 53 pesticides and 49 degradates were evaluated during 2004–2005, and the results combined with the PTI values from the first edition (values from the first edition were not updated). These additional pesticides and degradates were analyzed at a subset of NAWQA sites, beginning in 1999. More detail on database searches performed for editions 1 and 2 is provided below. Of the 129 total parent compounds analyzed by NAWQA and evaluated for PTI, most are herbicides (54 percent) or insecticides (35 percent); the remainder are fungicides (8 percent), with one acaricide, nematocide, defoliant, and plant growth regulator each also evaluated. Pesticide data were collected at various levels of intensity throughout the year at stream sites in each NAWQA study unit (Shelton, 1994).

PTI, first edition: In December 2000, the first 83 pesticides and degradates were evaluated. Toxicity data for each compound were obtained primarily from two EPA databases—AQUIRE (AQUatic Toxicity Information REtrieval) and the PED (Pesticide Ecotoxicity Database). AQUIRE (*http://www.epa.gov/ecotox/*), a database developed by the EPA's National Health and Environmental Effects Research Laboratory (NHEERL), is one of the primary resources for aquatic toxicity information and has been commonly used to evaluate and prioritize the hazards of industrial chemicals and pesticides for impact assessments of effluent and leachate discharges (U.S. Environmental Protection Agency, accessed December 12, 2000). The second EPA database is the PED, which was developed by the EPA Office of Pesticide Programs (OPP). Some of the toxicity data are in both databases. Seventy-five of the 83 pesticides and degradates evaluated had appropriate toxicity data available (see below for selection criteria), and a total of 2,823 bioassays were obtained for these 75 compounds. As noted previously, PTI, first edition, was published in Munn and Gilliom (2001).

PTI, second edition: In May 2004, an additional 96 pesticides and degradates were evaluated. Toxicity data for each compound were obtained by searching EPA's ECOTOXicology (ECOTOX) Database, which is created and maintained by the EPA Office of Research and Development and the EPA NHEERL's Mid-Continent Ecology Division. This database contains several previously separate datasets, including AQUIRE and OPP's Pesticide Ecotoxicity Database (U.S. Environmental Protection Agency, 2005a), which were both searched for the first edition. The current ECOTOX database allows convenient searching through a single interface for multiple EPA datasets. Then in March 2005, an additional six pesticides and degradates (recently added to NAWQA analytical schedules) were evaluated for the PTI, again by searching EPA's ECOTOX database. Qualifying toxicity data were available for 49 of the 102 total compounds searched during 2004–2005 (U.S. Environmental Protection Agency, accessed May 1, 2004, and March 2, 2005). The data retrieved from

ECOTOX contained a substantial number of apparent duplicate entries, defined as having the identical test compound, species, endpoint, effect, duration, toxicity concentration (LC_{50} or EC_{50} value), and reference number. Duplicate entries (196 of them) were deleted from the dataset (retaining only one copy of each), bringing the total number of newly retrieved studies to 846 for the 49 new compounds with qualifying toxicity data. PTI, second edition, combines these new studies with data from PTI, first edition, making a total of 3,669 bioassays for 124 pesticides and degradates (*table 2*).

The toxicity databases contain a wide range of toxicological data that are highly variable in nature and quality. Criteria were established to ensure that the data were relatively comparable; however, many factors in a bioassay could not be accounted for, any of which can greatly increase the variability of results for a particular compound. The criteria used to screen data for the PTI are:

- Species: Bioassays used are for cladocerans (commonly referred to as water fleas), benthic invertebrates (including a few invertebrates that are benthic dwellers for only a short time), and fish. Specific species were not requested or queried by name or group; instead, the species list in the search output was determined by the selection criteria used for test conditions and endpoint (see following list). Most, but not all, species in the search output are uniquely found in freshwater environments. However, a limited number of species are included that spend part of their life cycle in the freshwater environment (for example, salmon), or that are known to inhabit marine or estuarine habitats, but were tested under freshwater conditions. Additionally, a secondary editing step involved removing a limited number of bioassays conducted on species not corresponding to cladoceran, benthic invertebrates, or fish categories. Sponges and microcrustaceans, such as rotifers and ostracods, were not retained with the invertebrates.
- Test conditions: Bioassays were limited to laboratory tests conducted in freshwater. The ECOTOX database defines "freshwater" tests as having salinity of four parts per thousand or below (U.S. Environmental Protection Agency, 2005b).
- Endpoint: Two endpoints were selected from the toxicity databases, LC_{50} and EC_{50}.
- Effect: The effect measured was mortality for fish and benthic invertebrates, and immobilization for cladocerans.
- Duration: The LC_{50} test was for 96 hours, and the EC_{50} test was for 48 hours.
- Concentrations: Discreet values were required; therefore, results reported as "greater than" a particular value, or as ranges, were not included.

Qualifying toxicity data were found for 124 of the 185 compounds measured in water samples from the NAWQA Program, but with a wide range of bioassays per compound (1 to 232). The review resulted in a total of 3,669 bioassays divided into three datasets: 48-hour EC_{50} values for freshwater cladocerans, 96-hour LC_{50} values for freshwater benthic invertebrates, and 96-hour LC_{50} values for freshwater fish. All values are summarized by species in *table 3*.

The EC_{50} dataset for cladocerans, a related group of crustaceans commonly used in laboratory bioassays, includes 398 bioassays (*table 4*). There are five genera and ten species; however, most tests were run using *Daphnia magna* (75 percent), *Daphnia pulex* (10 percent), and *Simocephalus serrulatus* (10 percent). Of the 398 bioassays included, data were available for 100 of the 185 pesticide compounds analyzed by the NAWQA Program. The median number of bioassays per compound was 3 with a range of 1 to 24. Data from three or more bioassays were available for only 56 of the compounds. The combined EC_{50} toxicity data for cladoceran species are summarized in *table 5*.

The LC_{50} dataset for benthic invertebrates includes toxicity data from 699 bioassays and encompasses 64 of the 185 compounds analyzed in the NAWQA stream studies (*table 4*). The median number of bioassays per pesticide was five, with only 44 compounds having three or more bioassays. This dataset includes a wide range of benthic invertebrates (111 taxa). The 699 bioassays for benthic invertebrates were distributed among taxonomic groups (*table 4*) as follows:

- Crustacea: 56 percent of bioassays, 32 percent of invertebrate taxa;
- Insecta: 37 percent of bioassays, 46 percent of taxa;
- Mollusca: 4 percent of bioassays, 14 percent of taxa;
- Oligochaetae: 2 percent of bioassays, 5 percent of taxa;
- Turbellaria: 1 percent of bioassays, 2 percent of taxa; and
- Nematoda: less than 1 percent of bioassays, 1 percent of taxa.

The combined LC_{50} data for the benthic invertebrates are summarized in *table 6*.

Most bioassays found in the toxicity databases were for freshwater fish (2,572 bioassays, see *table 3*), with toxicity data for 122 of the 185 pesticide compounds (66 percent) measured by the NAWQA program. These include 86 of the 106 pesticides (or 81 percent) that were most commonly measured by the 51 NAWQA study units. This higher number resulted in a median of 9 bioassays per compound with 107 compounds having three or more bioassays. The fish dataset includes bioassays from 80 different taxa, including warm and cold water species. Fifty-three percent of the fish bioassay data came from three species: bluegill (23 percent), rainbow trout (21 percent), and fathead minnow (9 percent). The combined toxicity data for freshwater fish are summarized in *table 7*.

Tables 5–7 list the median toxicity concentrations (MTC) for selected pesticides toward each of three taxonomic groups: cladocerans, benthic invertebrates, and fish, respectively. To compute the PTI value for pesticides in a water sample toward one of these taxonomic groups, use equation (1), substituting measured pesticide concentrations for C_i values and median toxicity concentrations from *tables 5*, *6,* or *7* (as appropriate) for $MTC_{x,i}$ values.

The relative toxicity ratios of the pesticides within each of the three taxonomic groups are summarized in *table 8*. Relative toxicity ratios were calculated by dividing the toxicity of each pesticide in the dataset by the toxicity of the most toxic pesticide. For example, the most toxic pesticide for cladocerans is cyfluthrin, with a relative toxicity of 1, and the next pesticide, tefluthrin, has a relative toxicity of 0.65 and is 65 percent as toxic. A similar approach is used by the U.S. Environmental Protection Agency for summarizing the toxicity of dioxins and furans (U.S. Environmental Protection Agency, 1990). Relative toxicity ratios can be a useful tool for comparing toxicities of a group of pesticides at a site, for example. However, the ratios in *table 8* are inversely related to median toxicity concentrations and should not be used as MTC values in the PTI calculation (equation 1).

Applications of the Pesticide Toxicity Index

The PTI combines the exposure of aquatic organisms to pesticides (measured pesticide concentrations in stream water) with acute toxicity values (laboratory bioassays) to produce a toxicity index value for a sample or site. Although the PTI is not a direct measure of toxicity to biological communities, it is a method for weighting and aggregating pesticide concentrations in a biologically relevant manner. The PTI was developed for use with data collected as part of NAWQA studies of pesticide concentrations in stream water, and thus, method development was limited to the 185 pesticides and degradates that were analyzed in NAWQA stream samples during 1991–2004 (qualifying toxicity data were found for 124 of these compounds). The approach also can be applied to otherwise appropriate non-NAWQA data for the same pesticide compounds for freshwater organisms.

Most commonly, the application of the PTI in assessing stream quality begins with the computation of PTI values for detected chemicals and appropriate taxa groups for individual water samples. Given the relatively short time periods for the bioassay tests upon which the PTI is based (48 or 96 hours), each individual water sample reasonably represents a similar time interval as the bioassay test. Typical sampling at NAWQA sites on streams, for example, is two to four samples per month during high use and runoff periods and one to two samples per month during the rest of the year. Routine monitoring data collected by other programs or agencies is often more sparse than the NAWQA Program design because of the high expense of analysis. With only two to four instantaneous samples collected during a 30-day span, the probability of sampling short-lived conditions, such as peak concentrations resulting from runoff events, is relatively low. There is a general tendency toward sampling the conditions that are relatively common and thus potential acute toxicity is likely underestimated. In applying the PTI to monitoring data of this nature, PTI values computed for individual samples are the most appropriate basis for evaluating potential for toxicity in the stream. This may not be the most appropriate approach for other types of pesticide data, however, such as more frequently collected samples during a short-lived storm. In these cases, concentrations may need to be averaged over an appropriate time interval before computing the PTI.

The PTI can be calculated with toxicity values from any of the three major taxonomic groups or a specific subgroup. Of the three, the EC_{50} dataset for cladocerans is the least variable and most consistent because it is based on a small number of cladoceran species, with *Daphnia* the most common taxon. One advantage of using the *Daphnia* data is that the responses to a given pesticide in multiple bioassays should be more similar because the taxa are closely related (that is, interspecies variability should be reduced). Cladocerans tend to occur in lakes, ponds, and slow-moving rivers. On the other hand, cladocerans tend to be less important than benthic invertebrates in fast-moving streams. The other two datasets (fish and benthic invertebrates) were based on 96-hour LC_{50} values, with the fish dataset the most complete because it contains

bioassay data for the most compounds. However, the benthic invertebrate dataset may be the most appropriate PTI dataset to use in some analyses, such as in the comparison with benthic invertebrate community survey data.

Rank correlations of the relative toxicity ratios of individual pesticides (*table 8*) among the three taxonomic groups are significant for all combinations, but also generally indicate independent information value of each taxonomic group. The correlation between relative toxicity ratios for cladocerans and the benthic invertebrates was greatest, with an r^2 of 73 percent, but r^2 values for correlations between fish and cladocerans and between fish and benthic invertebrates were much lower at 57 percent and 50 percent, respectively.

PTI values for multiple individual water samples can be used to assess changes in potential toxicity over time at a single site or, if statistically aggregated by year or season, to rank stream sites according to their expected relative toxicity caused by pesticides. PTI values for samples or sites also can be used as explanatory variables in multivariate analysis aimed at determining which environmental variables best explain spatial patterns in the structure of biological communities.

Although the PTI relies on measured water concentrations and laboratory bioassays, the index could be modified to include other variables. For example, one could develop an index that includes a combination of toxicity, persistence (half-life), and bioconcentration factor (BCF). One could also combine results for organisms from multiple trophic levels, including primary producers (algae), primary consumers and prey species (invertebrates), and predators (invertebrates and fish) (Kimerle and others, 1997).

Example Application

The potential applications of the PTI include evaluating the temporal distribution of relative toxicity in a water body and identifying which compounds or groups of compounds are most likely to cause adverse effects. To illustrate the application of the PTI to these objectives, the seasonal distribution of pesticide levels in Little Buck Creek, an urban stream in the Indianapolis area, was examined. This site also has some cropland in its drainage basin. The data used are NAWQA results from analysis of 83 pesticides and degradates in 33 samples during 1993. Methods for sample collection and analysis are described by Larson and others (1999).

Throughout the year, most water samples from Little Buck Creek contain several pesticides— typically 6 to 10 were detectable at any particular time, and 18 different pesticides were found in more than 10 percent of the samples. This pattern is typical of many urban streams. The complex and varying mixtures of herbicides and insecticides make interpretation of potential effects on aquatic biota particularly difficult. *Figure 1* shows concentrations of the 18 most common pesticides during 1993. The total concentration of the 18 pesticides was usually dominated by atrazine, simazine, prometon, metolachlor, alachlor, and diazinon, and reached the highest levels from late May through mid-July.

Pesticide concentrations in Little Buck Creek were evaluated using the PTI (equation 1) for bluegills (*Lepomis macrochirus*), a common species in that area, using median toxicity values for bluegills from *table 3* as the median toxicity concentration (MTC) values for each of the 12 most commonly found pesticides for which there are toxicity values for bluegills. *Figure 2* shows the PTI for the combination of all 12 pesticides during 1993 and the individual contributions of each pesticide to the index value. *Figure 3* shows PTI results for bluegills compared with the total pesticide concentration. The PTI indicates a period of high potential toxicity during June and July, when total pesticide concentrations are highest. However, the PTI also indicates potential toxicity during parts of the autumn (especially), winter, and early spring when pesticide concentrations are low. Results indicate that inference of potential biological effects from pesticide concentration data alone may be misleading. In Little Buck Creek, the greatest contributor to the PTI is usually the organophosphate insecticide chlorpyrifos, even though its concentration is usually low compared with other compounds. Other major contributors to high PTI values are diazinon and malathion, which are also organophosphate insecticides.

Little Buck Creek illustrates one type of analysis and insight that can be gained through application of the PTI. The PTI provides a simple means to evaluate the potential toxicity, which is based on an additive model, of complex mixtures of pesticides on a sample by sample basis. The relation of PTI values, which are strictly relative, to actual biological effects remains to be tested. In evaluating such relations, however, the PTI provides a specific quantitative basis for hypotheses that can be tailored to many different situations. For example, individual PTI values can be computed for different compound groups with similar modes of toxicity (for example, organophosphates) and for the specific type of organism being studied in the field. Information on the seasonal timing of high PTI values can be used in the design of effects studies.

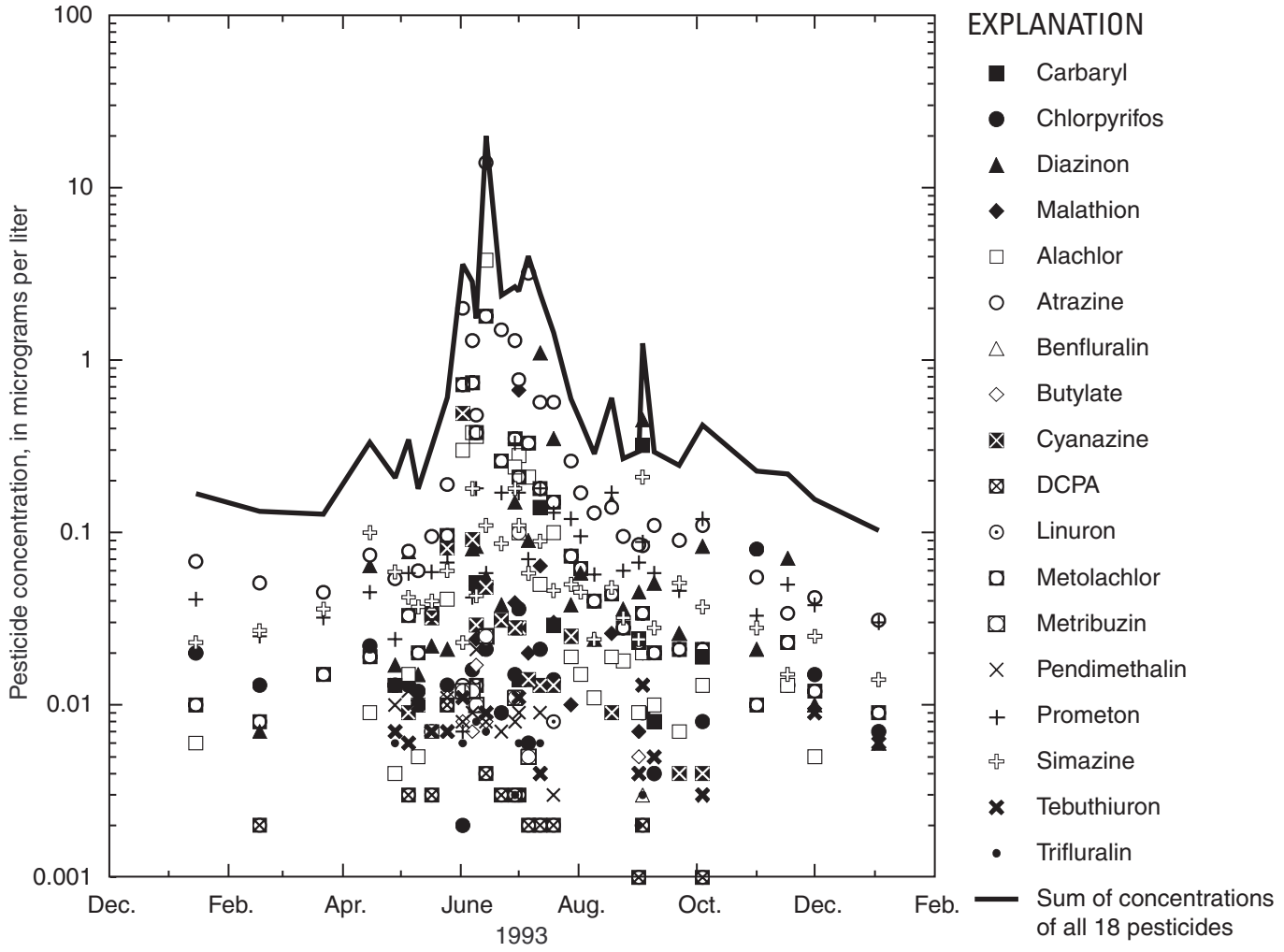

Figure 1. Concentrations of the 18 most common pesticides found in Little Buck Creek, Indiana, show the complexity of mixtures that occur in this stream.

Limitations of the Pesticide Toxicity Index

The PTI has several limitations, which must be carefully considered in applications:

- The PTI is a relative ranking system that indicates that one sample is likely to be more or less toxic than another sample, but does not necessarily indicate actual toxicity.
- Toxicity values are based on short-term laboratory experiments with EC_{50} (sublethal response) or LC_{50} (mortality) endpoints; therefore, the PTI does not incorporate long-term chronic endpoints.
- Environmental factors that are not accounted for by the PTI can modify the toxicity and bioavailability of pesticides, including dissolved organic carbon, suspended sediment, and temperature.
- The PTI is based on the simplifying assumption that pesticide toxicity is additive among pesticides and there is no chemical interaction (synergism or antagonism). This may not be the case in the environment—especially for complex mixtures of pesticides from different chemical classes with different modes of action.
- The PTI is limited to pesticides measured in the water column—hydrophobic pesticides may be underrepresented in terms of potential toxicity (especially to benthic organisms). Even if hydrophobic pesticides are present in the stream, their concentrations in the water column may be too low to be detected by conventional sampling and analysis methods.

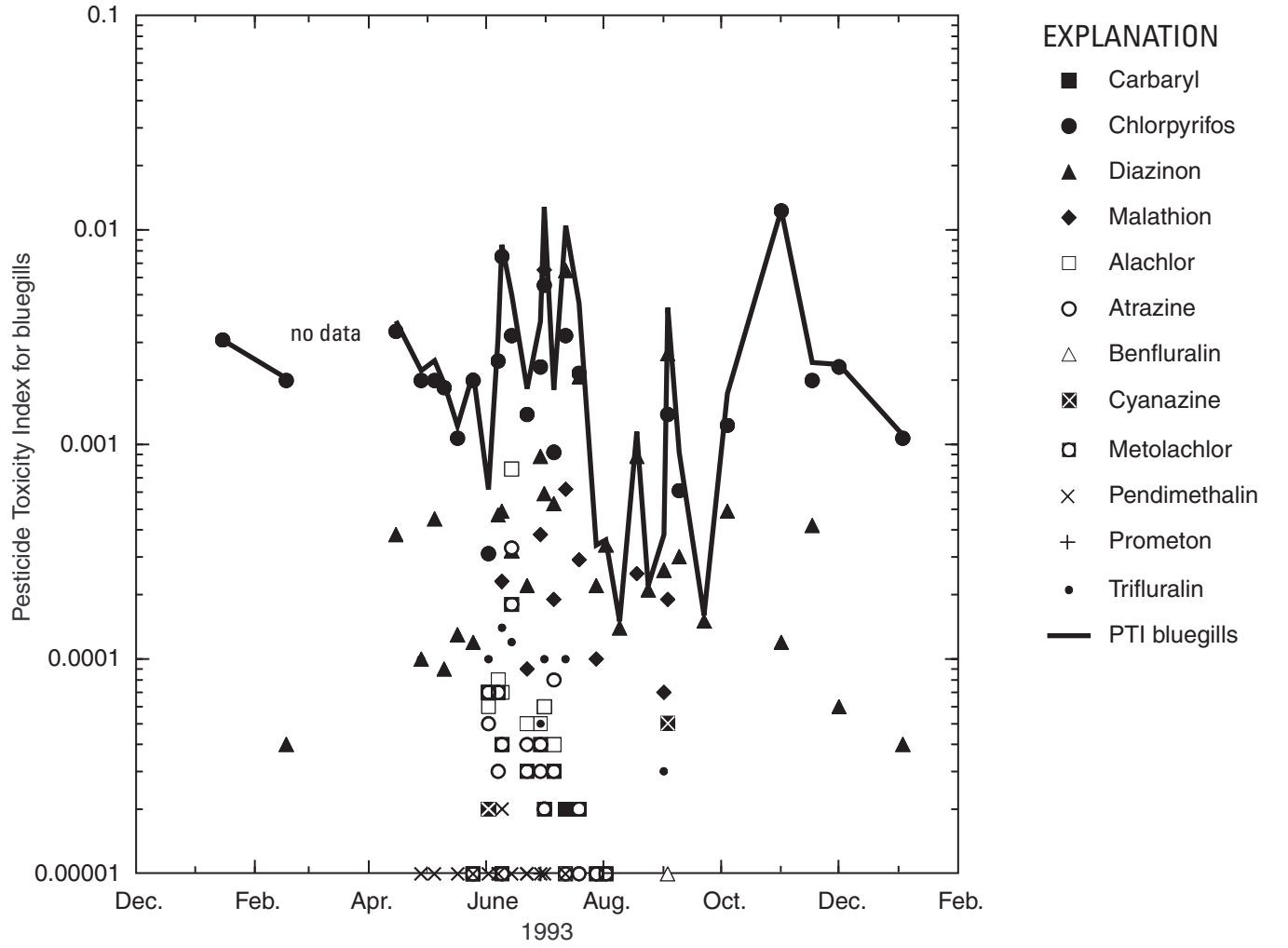

Figure 2. Pesticide Toxicity Index (PTI) for bluegills in Little Buck Creek, Indiana, and the contributions of selected pesticides. Nondetections and other individual values less than a PTI of 0.00001 are not plotted.

- One of the primary limitations of the PTI is the uncertainty in the relative toxicity of compounds that have a low number of comparable bioassays. Whereas 3,669 bioassays appear to be a large dataset, the data are divided into three categories of endpoints (EC_{50} for cladocerans, LC_{50} for benthic invertebrates, and LC_{50} for fish), 124 pesticide compounds, and 200 species, making the number in each group relatively small. Many taxa only have a single bioassay per compound, although a few taxa have numerous bioassays for each compound. Even when species are combined within each of the three major taxonomic groups, the median number of bioassays per compound is relatively low, ranging from three for the EC_{50} dataset to nine for the LC_{50} fish dataset. While this does not preclude the use of the data as the best available, it demonstrates the sparseness of available data on the toxicity of many of the pesticides presently applied.

The high variability in toxicity data should be considered when using data from this report or any database. For example, the malathion LC_{50} toxicity values for fish (n = 146) range from 0.19 to 52,200 parts per billion (ppb). The range of malathion toxicity decreases when the data are restricted to a single species like bluegills (n = 13, 20 to 1,200 ppb) or rainbow trout (n = 17, 2.8 to 234 ppb). The high variation in laboratory toxicity tests is due to many factors, including (1) formula of pesticide tested, (2) species tested and condition of individual organisms used, (3) water conditions (pH, temperature) during the testing period, (4) testing environment (flow through or static), and (5) individual operator of the test. These factors all

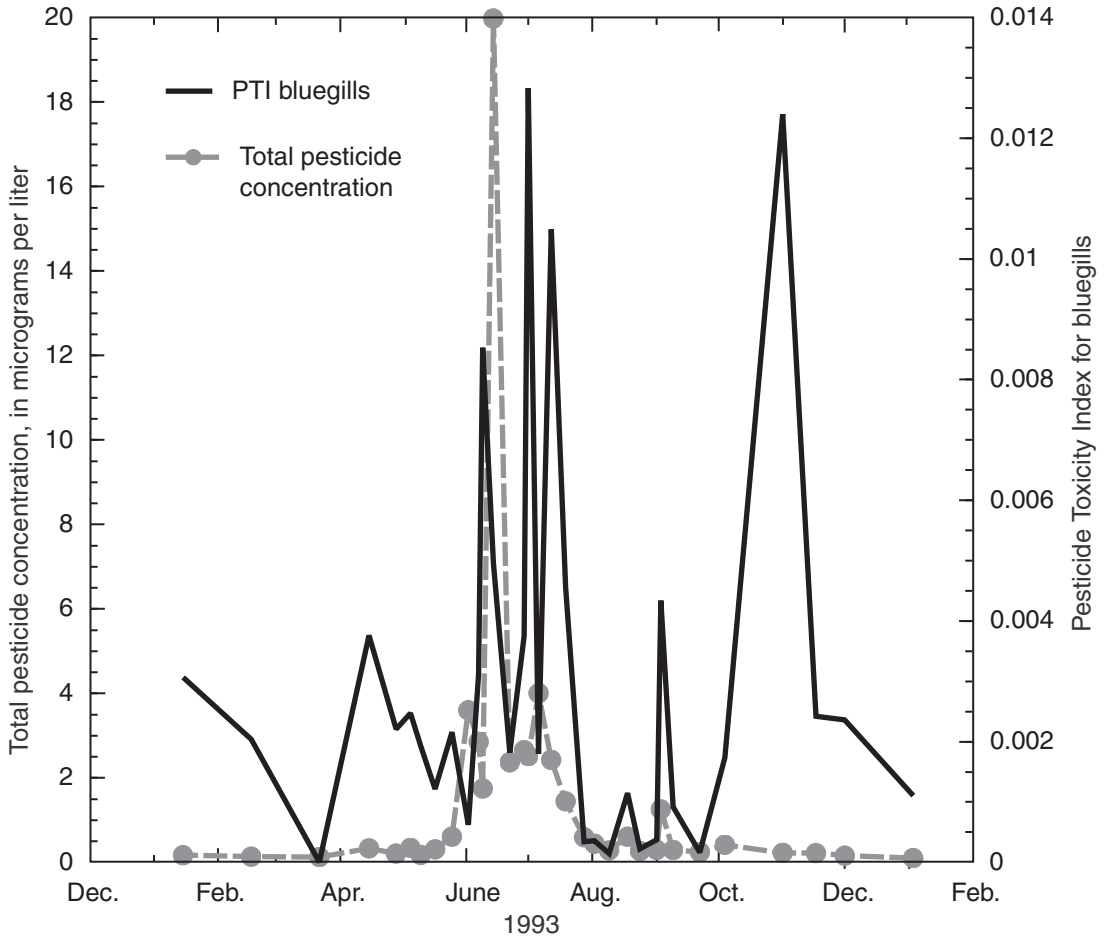

Figure 3. Pesticide Toxicity Index (PTI) for bluegills in Little Buck Creek, Indiana, compared with total pesticide concentration.

contribute to the overall variability observed when combining data from multiple sources. For applications in which certain individual compounds are particularly important, special attention should be given to the variability in toxicity test results for those compounds. Adjustment of the approach may be merited, such as basing the PTI on other percentiles (besides the median) of the test results, or using only a subset of test results that most closely match the needs of a particular assessment.

The problem of limited data can be addressed in two ways. First, the toxicity data can be expanded to include published data from other databases and reports; however, it would be essential to carefully cross-reference between sources to prevent the duplication of data and to verify that the bioassays are as comparable as possible, a task that could prove difficult. A second approach is to reduce the data to a subset of species with more data that are most relevant to a particular problem. The PTI, for example, can be calculated using only warm or cold water species in areas where only one of the two groups resides.

Summary and Conclusions

The Pesticide Toxicity Index (PTI) for a particular sample is the sum of toxicity quotients (measured concentration divided by the median toxicity concentration from bioassays) for each detected pesticide. Qualifying acute toxicity data were found for one or more types of test organisms for 124 of the 185 pesticides and degradates measured in NAWQA samples, but with a wide range of bioassays per compound (1 to 232). There were a total of 3,669 bioassays for the 124 compounds, including 398 48-hour EC_{50} values for freshwater cladocerans, 699 96-hour LC_{50} values for freshwater benthic invertebrates, and 2,572 96-hour LC_{50} values for freshwater fish.

The PTI can be used to rank or compare the potential toxicity of samples or sites on a relative basis for use in further analysis or additional assessments. In particular, the PTI may be useful as a basis for comparing the potential significance of pesticides in different streams on a common basis, for evaluating relations between pesticide exposure and observed biological conditions, and for prioritizing where further studies are needed. Initial example applications indicate that high relative toxicity may sometimes occur during seasons when total pesticide concentrations are relatively low.

The PTI has several limitations, which must be carefully considered in applications:

- The PTI is a relative ranking system that indicates that a sample is likely to be more or less toxic than another sample, but does not necessarily indicate actual toxicity.
- Toxicity values are based on short-term laboratory experiments with EC_{50} or LC_{50} endpoints; therefore, the PTI does not incorporate long-term chronic endpoints.
- Environmental factors that are not accounted for by the PTI can modify the toxicity and bioavailability of pesticides, including dissolved organic carbon, suspended sediment, and temperature.
- The PTI is based on the simplifying assumption that pesticide toxicity is additive among pesticides and there is no chemical interaction (synergism or antagonism).

The utility of the PTI for evaluating effects of pesticides on aquatic biota in streams will be determined by testing the correlation of PTI values with various measures of the nature and health of aquatic biota.

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TABLES

Table 1. Phases of evaluation of toxicity data for Pesticide Toxicity Index.

[AQUIRE, AQUatic Toxicity Information Retrieval; ECOTOX, ECOTOXicology Database; No., number; PED, Pesticide Ecotoxicity Database; PTI, Pesticide Toxicity Index.]

PTI editon	No. of pesticide compounds evaluated	No. of pesticide compounds with toxicity data	Database(s) searched	Date of search
1	83	75	AQUIRE, PED	Dec–00
2	96	48	ECOTOX	May–04
	6	1	ECOTOX	Mar–05

Table 2. Extended list of pesticides analyzed in streams for the National Water-Quality Assessment Program, 1991 to 2004.

[AQUIRE, AQUatic Toxicity Information REtrieval (EPA database); CAS, Chemical Abstracts Service; ECOTOX, ECOTOXicology database (EPA database); PED, Pesticide Ecotoxicity Database; nd, no data]

Compound	Chemical class	Use	CAS number	Database(s) searched	Date of search	Number of bioassays			
						Cladocerans	Benthic invertebrates	Fish	Total
2-(2,4,5-Trichlorophenoxy) propionic acid	Chlorophenoxy acid	Herbicide	93-72-1	AQUIRE/PED	Dec-2000	nd	1	11	12
2,4,5-T	Chlorophenoxy acid	Herbicide	93-76-5	AQUIRE/PED	Dec-2000	nd	nd	12	12
2,4-D	Chlorophenoxy acid	Herbicide	94-75-7	AQUIRE/PED	Dec-2000	3	4	43	50
2,4-DB	Chlorophenoxy acid	Herbicide	94-82-6	AQUIRE/PED	Dec-2000	1	3	9	13
2,6-Dinitro-2-methylphenol	Nitrophenol	Herbicide	534-52-1	AQUIRE/PED	Dec-2000	2	3	8	13
3,4-Dichloroaniline	Urea degradate	nd	95-76-1	ECOTOX	May-2004	10	8	13	31
3-Trifluoromethylaniline	Fluometuron degradate/precursor	nd	98-16-8	ECOTOX	May-2004	1	nd	nd	1
4-Chloro-2-methylphenol	Chlorophenoxy herbicide degradate/ precursor	nd	1570-64-5	ECOTOX	May-2004	nd	nd	1	1
Acetochlor	Chloroacetanilide	Herbicide	34256-82-1	AQUIRE/PED	Dec-2000	3	nd	8	11
Alachlor	Acetanilide	Herbicide	15972-60-8	AQUIRE/PED	Dec-2000	8	2	25	35
Aldicarb	Carbamate	Insecticide	116-06-3	AQUIRE/PED	Dec-2000	3	2	14	19
Aldicarb sulfone	Carbamate, aldicarb degradate	nd	1646-88-4	AQUIRE/PED	Dec-2000	3	nd	2	5
Aldicarb sulfoxide	Aldicarb degradate	nd	1646-87-3	AQUIRE/PED	Dec-2000	2	nd	nd	2
alpha-Endosulfan	Organochlorine	Insecticide	959-98-8	ECOTOX	May-2004	nd	nd	3	3
alpha-HCH	Organochlorine	Insecticide	319-84-6	AQUIRE/PED	Dec-2000	2	1	1	4
Atrazine	Triazine	Herbicide	1912-24-9	AQUIRE/PED	Dec-2000	4	9	33	46
Azinphos-methyl	Organophosphorus	Insecticide	86-50-0	AQUIRE/PED	Dec-2000	4	31	107	142
Bendiocarb	Carbamate	Insecticide	22781-23-3	ECOTOX	May-2004	1	3	8	12
Benfluralin	Dinitroaniline	Herbicide	1861-40-1	AQUIRE/PED	Dec-2000	1	2	7	10
Bensulfuron-methyl	Urea	Herbicide	83055-99-6	ECOTOX	May-2004	2	1	7	10
Bentazon	Miscellaneous	Herbicide	25057-89-0	AQUIRE/PED	Dec-2000	nd	nd	2	2
beta-Endosulfan	Organochlorine	Insecticide	33213-65-9	ECOTOX	May-2004	nd	nd	2	2
Bifenthrin	Pyrethroid	Insecticide	82657-04-3	ECOTOX	May-2004	1	nd	2	3
Bromacil	Uracil	Herbicide	314-40-9	AQUIRE/PED	Dec-2000	1	nd	5	6
Bromoxynil	Phenol	Herbicide	1689-84-5	AQUIRE/PED	Dec-2000	24	nd	7	31
Butylate	Thiocarbamate	Herbicide	2008-41-5	AQUIRE/PED	Dec-2000	2	4	14	20
Carbaryl	Carbamate	Insecticide	63-25-2	AQUIRE/PED	Dec-2000	16	51	165	232
Carbofuran	Carbamate	Insecticide	1563-66-2	AQUIRE/PED	Dec-2000	8	12	48	68
Chlorimuron-ethyl	Urea	Herbicide	90982-32-4	ECOTOX	May-2004	1	nd	2	3
Chlorothalonil	Organochlorine	Herbicide	1897-45-6	AQUIRE/PED	Dec-2000	4	nd	25	29
Chlorpyrifos	Organophosphorus	Insecticide	2921-88-2	AQUIRE/PED	Dec-2000	3	31	53	87
Cyanazine	Triazine	Herbicide	21725-46-2	AQUIRE/PED	Dec-2000	9	2	16	27
Cycloate	Thiocarbamate	Herbicide	1134-23-2	ECOTOX	May-2004	2	4	11	17
Cyfluthrin	Pyrethroid	Insecticide	68359-37-5	ECOTOX	May-2004	2	nd	4	6

Table 2. Extended list of pesticides analyzed in streams for the National Water-Quality Assessment Program, 1991 to 2004—Continued.

[AQUIRE, AQUatic Toxicity Information REtrieval (EPA database); CAS, Chemical Abstracts Service; ECOTOX, ECOTOXicology database (EPA database); PED, Pesticide Ecotoxicity Database; nd, no data]

Compound	Chemical class	Use	CAS number	Database(s) searched	Date of search	Number of bioassays			
						Cladocerans	Benthic invertebrates	Fish	Total
Cyhalothrin	Pyrethroid	Insecticide	91465-08-6	ECOTOX	May-2004	5	nd	6	11
Cypermethrin	Pyrethroid	Insecticide	52315-07-8	ECOTOX	May-2004	5	12	27	44
DCPA (Dacthal)	Chlorobenzoic acid ester	Insecticide	1861-32-1	AQUIRE/PED	Dec-2000	2	1	2	5
Diazinon	Organophosphorus	Insecticide	333-41-5	AQUIRE/PED	Dec-2000	17	19	79	115
Dicamba	Chlorobenzoic acid	Herbicide	1918-00-9	AQUIRE/PED	Dec-2000	2	2	8	12
Dichlobenil	Organochlorine	Herbicide	1194-65-6	AQUIRE/PED	Dec-2000	6	10	20	36
Dichlorprop (2,4-DP)	Chlorophenoxy acid derivative	Herbicide	120-36-5	AQUIRE/PED	Dec-2000	2	nd	18	20
Dichlorvos	Organophosphorus	Insecticide	62-73-7	ECOTOX	May-2004	5	16	32	53
Dicrotophos	Organophosphorus	Insecticide	141-66-2	ECOTOX	May-2004	2	6	5	13
Dieldrin	Organochlorine	Insecticide	60-57-1	AQUIRE/PED	Dec-2000	7	30	83	120
Dimethomorph	Morpholine	Fungicide	110488-70-5	ECOTOX	May-2004	nd	nd	1	1
Dinoseb	Nitrophenol	Herbicide	88-85-7	AQUIRE/PED	Dec-2000	nd	1	42	43
Diphenamid	Amide	Herbicide	957-51-7	ECOTOX	May-2004	2	5	8	15
Disulfoton	Organophosphorus	Insecticide	298-04-4	AQUIRE/PED	Dec-2000	1	21	35	57
Diuron	Urea	Herbicide	330-54-1	AQUIRE/PED	Dec-2000	7	8	30	45
EPTC	Thiocarbamate	Herbicide	759-94-4	AQUIRE/PED	Dec-2000	3	6	13	22
Ethalfluralin	Dinitroaniline	Herbicide	55283-68-6	AQUIRE/PED	Dec-2000	1	nd	6	7
Ethion	Organophosphorus	Insecticide	563-12-2	ECOTOX	May-2004	3	6	15	24
Ethoprop	Organophosphorus	Insecticide	13194-48-4	AQUIRE/PED	Dec-2000	3	nd	13	16
Ethyl parathion	Organophosphorus	Insecticide	56-38-2	AQUIRE/PED	Dec-2000	14	62	60	136
Fenamiphos	Organophosphorus	Nematocide	22224-92-6	ECOTOX	May-2004	4	2	10	16
Fenthion	Organophosphorus	Insecticide	55-38-9	ECOTOX	May-2004	6	17	52	75
Fenuron	Urea	Herbicide	101-42-8	AQUIRE/PED	Dec-2000	nd	nd	1	1
Fipronil	Phenyl pyrazole	Insecticide	120068-37-3	ECOTOX	Mar-2005	3	nd	5	8
Flumetralin	Dinitroaniline	Plant growth regulator	62924-70-3	ECOTOX	May-2004	2	nd	6	8
Flumetsulam	Sulfoanilide	Herbicide	98967-40-9	ECOTOX	May-2004	1	nd	3	4
Fluometuron	Urea	Herbicide	2164-17-2	AQUIRE/PED	Dec-2000	nd	nd	26	26
Fonofos	Organophosphorus	Insecticide	944-22-9	AQUIRE/PED	Dec-2000	3	nd	16	19
Hexazinone	Triazine	Herbicide	51235-04-2	ECOTOX	May-2004	2	nd	25	27
Imazethapyr	Imidazole	Herbicide	81335-37-7	ECOTOX	May-2004	2	nd	6	8
Iprodione	Dicarboximide	Fungicide	36734-19-7	ECOTOX	May-2004	3	nd	6	9
Isofenphos	Organophosphorus	Insecticide	25311-71-1	ECOTOX	May-2004	4	nd	9	13
Lindane	Organochlorine	Herbicide	58-89-9	AQUIRE/PED	Dec-2000	17	55	116	188
Linuron	Urea	Herbicide	330-55-2	AQUIRE/PED	Dec-2000	4	nd	8	12
Malathion	Organophosphorus	Insecticide	121-75-5	AQUIRE/PED	Dec-2000	15	68	146	229

Table 2. Extended list of pesticides analyzed in streams for the National Water-Quality Assessment Program, 1991 to 2004—Continued.

[AQUIRE, AQUatic Toxicity Information REtrieval (EPA database); CAS, Chemical Abstracts Service; ECOTOX, ECOTOXicology database (EPA database); PED, Pesticide Ecotoxicity Database; nd, no data]

Compound	Chemical class	Use	CAS number	Database(s) searched	Date of search	Number of bioassays			
						Cladocerans	Benthic invertebrates	Fish	Total
MCPA	Chlorophenoxy acid	Herbicide	94-74-6	AQUIRE/PED	Dec-2000	nd	nd	6	6
MCPB	Chlorophenoxy acid	Herbicide	94-81-5	AQUIRE/PED	Dec-2000	nd	nd	2	2
Metalaxyl	Amino acid derivative	Fungicide	57837-19-1	ECOTOX	May-2004	3	nd	9	12
Methidathion	Organophosphorus	Insecticide	950-37-8	ECOTOX	May-2004	2	1	12	15
Methiocarb	Carbamate	Insecticide	2032-65-7	AQUIRE/PED	Dec-2000	1	12	12	25
Methomyl	Carbamate	Insecticide	16752-77-5	AQUIRE/PED	Dec-2000	6	22	75	103
Methyl parathion	Organophosphorus	Insecticide	298-00-0	AQUIRE/PED	Dec-2000	10	14	81	105
Metolachlor	Acetanilide	Herbicide	51218-45-2	AQUIRE/PED	Dec-2000	3	nd	8	11
Metribuzin	Triazine	Herbicide	21087-64-9	AQUIRE/PED	Dec-2000	3	nd	10	13
Metsulfuron methyl	Urea	Herbicide	74223-64-6	ECOTOX	May-2004	2	nd	6	8
Molinate	Thiocarbamate	Herbicide	2212-67-1	AQUIRE/PED	Dec-2000	4	11	31	46
Myclobutanil	Triazole	Fungicide	88671-89-0	ECOTOX	May-2004	1	nd	2	3
Napropamide	Amide	Herbicide	1529-99-7	AQUIRE/PED	Dec-2000	2	nd	6	8
1-Naphthol	Phenol, degradate of carbaryl and napropamide	Adjuvant	90-15-3	ECOTOX	May-2004	nd	nd	7	7
Norflurazon	Amine	Herbicide	27314-13-2	AQUIRE/PED	Dec-2000	nd	nd	3	3
Oryzalin	Dinitroaniline	Herbicide	19044-88-3	AQUIRE/PED	Dec-2000	1	2	3	6
Oxamyl	Carbamate	Insecticide	23135-22-0	AQUIRE/PED	Dec-2000	5	1	14	20
Oxyfluorfen	Diphenyl ether	Herbicide	42874-03-3	ECOTOX	May-2004	nd	nd	3	3
p,p′-DDE	*p,p′*-DDT degradate	nd	72-55-9	AQUIRE/PED	Dec-2000	nd	1	3	4
Paraoxon-ethyl	Organophosphorus	Insecticide	311-45-5	ECOTOX	May-2004	nd	nd	2	2
Pebulate	Thiocarbamate	Herbicide	1114-71-2	AQUIRE/PED	Dec-2000	1	2	3	6
Pendimethalin	Dinitroaniline	Herbicide	40487-42-1	AQUIRE/PED	Dec-2000	2	nd	12	14
Permethrin	Pyrethroid	Insecticide	52645-53-1	AQUIRE/PED	Dec-2000	nd	3	34	37
Phorate	Organophosphorus	Insecticide	298-02-2	AQUIRE/PED	Dec-2000	4	14	24	42
Phosmet	Organophosphorus	Insecticide	732-11-6	ECOTOX	May-2004	5	4	101	110
Picloram	Pyridine	Herbicide	1918-02-1	AQUIRE/PED	Dec-2000	nd	3	55	58
Profenofos	Organophosphorus	Insecticide	41198-08-7	ECOTOX	May-2004	5	3	16	24
Prometon	Triazine	Herbicide	1610-18-0	AQUIRE/PED	Dec-2000	3	nd	13	16
Prometryne	Triazine	Herbicide	7287-19-6	ECOTOX	May-2004	2	nd	8	10
Pronamide	Amide	Herbicide	23950-58-5	AQUIRE/PED	Dec-2000	nd	nd	3	3
Propachlor	Acetanilide	Herbicide	1918-16-7	AQUIRE/PED	Dec-2000	3	nd	4	7
Propanil	Amide	Herbicide	709-98-8	AQUIRE/PED	Dec-2000	3	1	6	10
Propargite	Sulfite ester	Acaricide	2312-35-8	AQUIRE/PED	Dec-2000	2	1	6	9
Propetamphos	Organophosphorus	Insecticide	31218-83-4	ECOTOX	May-2004	nd	nd	6	6
Propham	Carbamate	Herbicide	122-42-9	AQUIRE/PED	Dec-2000	4	2	4	10

Table 2. Extended list of pesticides analyzed in streams for the National Water-Quality Assessment Program, 1991 to 2004—Continued.

[AQUIRE, AQUatic Toxicity Information REtrieval (EPA database); CAS, Chemical Abstracts Service; ECOTOX, ECOTOXicology database (EPA database); PED, Pesticide Ecotoxicity Database; nd, no data]

Compound	Chemical class	Use	CAS number	Database(s) searched	Date of search	Number of bioassays			
						Cladocerans	Benthic invertebrates	Fish	Total
Propiconazole	Triazole	Fungicide	60207-90-1	ECOTOX	May-2004	3	11	27	41
Propoxur	Carbamate	Insecticide	114-26-1	AQUIRE/PED	Dec-2000	2	13	34	49
Siduron	Urea	Herbicide	1982-49-6	ECOTOX	May-2004	nd	nd	3	3
Simazine	Triazine	Herbicide	122-34-9	AQUIRE/PED	Dec-2000	2	3	32	37
Sulfometuron-methyl	Urea	Herbicide	74222-97-2	ECOTOX	May-2004	3	1	4	8
Sulfotepp (Dithion)	Organophosphorus	Insecticide	3689-24-5	ECOTOX	May-2004	1	nd	6	7
Sulprofos	Organophosphorus	Insecticide	35400-43-2	ECOTOX	May-2004	3	nd	5	8
Tebupirimphos	Organophosphorus	Insecticide	96182-53-5	ECOTOX	May-2004	3	nd	3	6
Tebuthiuron	Urea	Herbicide	34014-18-1	AQUIRE/PED	Dec-2000	1	nd	2	3
Tefluthrin	Pyrethroid	Insecticide	79538-32-2	ECOTOX	May-2004	2	nd	4	6
Temephos	Organophosphorus	Insecticide	3383-96-8	ECOTOX	May-2004	2	10	92	104
Terbacil	Uracil	Herbicide	5902-51-2	AQUIRE/PED	Dec-2000	1	nd	6	7
Terbufos	Organophosphorus	Insecticide	13071-79-9	AQUIRE/PED	Dec-2000	4	17	30	51
Terbuthylazine	Triazine	Herbicide	5915-41-3	ECOTOX	May-2004	2	nd	7	9
Thiobencarb	Thiocarbamate	Herbicide	28249-77-6	AQUIRE/PED	Dec-2000	4	8	41	53
Triallate	Thiocarbamate	Herbicide	2303-17-5	AQUIRE/PED	Dec-2000	2	nd	5	7
Tribenuron-methyl	Urea	Herbicide	101200-48-0	ECOTOX	May-2004	nd	nd	2	2
Tribufos	Organophosphorus	Defoliant	78-48-8	ECOTOX	May-2004	3	5	26	34
Triclopyr	Organochlorine	Herbicide	55335-06-3	AQUIRE/PED	Dec-2000	nd	nd	19	19
Trifluralin	Dinitroaniline	Herbicide	1582-09-8	AQUIRE/PED	Dec-2000	7	13	28	48

Table 3. Summary of toxicity values by species.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
EC_{50}	Cladocera	*Ceriodaphnia dubia*	Water flea	Carbaryl	48	IMBL	1	—	3.06	—
EC_{50}	Cladocera	*Ceriodaphnia dubia*	Water flea	Carbofuran	48	IMBL	1	—	2	—
EC_{50}	Cladocera	*Chydorus ovalis*	Water flea	Lindane (gamma-HCH)	48	IMBL	1	—	1,100	—
EC_{50}	Cladocera	*Daphnia carinata*	Water flea	Carbaryl	48	IMBL	1	—	35	—
EC_{50}	Cladocera	*Daphnia carinata*	Water flea	Dieldrin	48	IMBL	1	—	130	—
EC_{50}	Cladocera	*Daphnia carinata*	Water flea	Lindane (gamma-HCH)	48	IMBL	1	—	100	—
EC_{50}	Cladocera	*Daphnia carinata*	Water flea	Malathion	48	IMBL	1	—	100	—
EC_{50}	Cladocera	*Daphnia laevis*	Water flea	Aldicarb	48	IMBL	2	51	58	65
EC_{50}	Cladocera	*Daphnia laevis*	Water flea	Aldicarb sulfone	48	IMBL	2	369	462.5	556
EC_{50}	Cladocera	*Daphnia laevis*	Water flea	Aldicarb sulfoxide	48	IMBL	2	43	50	57
EC_{50}	Cladocera	*Daphnia longispina*	Water flea	3,4-Dichloroaniline	48	IMBL	1	—	440	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	2,4-D	48	IMBL	1	—	25,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	2,4-DB	48	IMBL	1	—	25,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	3,4-Dichloroaniline	48	IMBL	9	54	791.4	2,253.5
EC_{50}	Cladocera	*Daphnia magna*	Water flea	3-Trifluoromethylaniline	48	IMBL	1	—	2,700	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	4,6-Dinitro-2-methylphenol (DNOC)	48	IMBL	1	—	2,700	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Acetochlor	48	IMBL	3	7,200	8,200	14,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Alachlor	48	IMBL	6	7,700	21,500	35,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Aldicarb	48	IMBL	1	—	410.7	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Aldicarb sulfone	48	IMBL	1	—	280	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	alpha-HCH	48	IMBL	2	800	900	1,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Atrazine	48	IMBL	2	6,900	60,950	115,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Azinphos-methyl	48	IMBL	4	1.1	1.55	4.4
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Bendiocarb	48	IMBL	1	—	29.2	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Benfluralin	48	IMBL	1	—	2,186	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Bensulfuron-methyl	48	IMBL	2	99,000	99,500	100,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Bifenthrin	48	IMBL	1	—	1.6	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Bromacil	48	IMBL	1	—	121,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Bromoxynil	48	IMBL	24	41	126.5	74,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Butylate	48	IMBL	2	11,900	85,250	158,600
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Carbaryl	48	IMBL	9	2.77	7.2	7,100
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Carbofuran	48	IMBL	5	29	41	86.1
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Chlorimuron-ethyl	48	IMBL	1	—	10,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Chlorothalonil	48	IMBL	4	70	97	172
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Chlorpyrifos	48	IMBL	2	0.1	0.9	1.7
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Cyanazine	48	IMBL	9	35,500	84,000	106,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Cycloate	48	IMBL	2	24,000	24,000	24,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Cyfluthrin	48	IMBL	2	0.025	0.083	0.141
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Cyhalothrin	48	IMBL	5	0.04	0.23	0.76
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Cypermethrin	48	IMBL	5	1	1.56	111,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	DCPA (Dacthal)	48	IMBL	2	27,000	82,500	138,000

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Diazinon	48	IMBL	10	0.5	1.16	1.5
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Dicamba	48	IMBL	2	110,700	430,350	750,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Dichlobenil	48	IMBL	1	—	6,200	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Dichlorprop (2,4-DP)	48	IMBL	2	5,400	5,825	6,250
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Dichlorvos	48	IMBL	1	—	1,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Dicrotophos	48	IMBL	1	—	12.7	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Diphenamid	48	IMBL	2	58,000	58,000	58,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Disulfoton	48	IMBL	1	—	13	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Diuron	48	IMBL	1	—	8,400	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	EPTC	48	IMBL	3	6,400	7,500	14,150
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Ethalfluralin	48	IMBL	1	—	60	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Ethion	48	IMBL	1	—	0.056	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Ethoprop	48	IMBL	3	43.9	93	690,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Ethyl parathion (parathion)	48	IMBL	7	0.7	1.3	7.2
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Fenamiphos	48	IMBL	4	1.3	1.75	7.55
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Fenthion	48	IMBL	3	5.2	5.7	50
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Fipronil	48	IMBL	3	29	100	190
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Flumetralin	48	IMBL	2	2.8	30.9	59
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Flumetsulam	48	IMBL	1	—	254,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Fonofos	48	IMBL	3	2	8.37	15.5
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Hexazinone	48	IMBL	2	85,000	118,300	151,600
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Imazethapyr	48	IMBL	2	280,000	640,000	1,000,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Iprodione	48	IMBL	3	360	430	7,200
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Isofenphos	48	IMBL	4	1.6	4.1	4.6
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Lindane (gamma-HCH)	48	IMBL	8	516	4,145	8,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Linuron	48	IMBL	4	120	240	1,100
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Malathion	48	IMBL	7	1	1.7	2.2
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Metalaxyl	48	IMBL	3	12,500	29,300	121,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Methidathion	48	IMBL	2	6.4	9.15	11.9
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Methiocarb	48	IMBL	1	—	19	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Methomyl	48	IMBL	6	7.6	8.8	3,200
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Methyl parathion	48	IMBL	8	0.14	8.25	28.2
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Metolachlor	48	IMBL	3	23,500	25,100	26,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Metribuzin	48	IMBL	3	4,180	4,200	98,500
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Metsulfuron methyl	48	IMBL	2	150,000	150,000	150,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Molinate	48	IMBL	3	4,700	19,400	24,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Myclobutanil	48	IMBL	1	—	11,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Napropamide	48	IMBL	2	14,300	19,500	24,700
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Oryzalin	48	IMBL	1	—	1,500	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Oxamyl	48	IMBL	5	420	1,950	5,700
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Pebulate	48	IMBL	1	—	6,830	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Pendimethalin	48	IMBL	2	280	2,690	5,100

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Phorate	48	IMBL	4	18.23	21.75	37
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Phosmet	48	IMBL	5	5.6	10.9	24
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Profenofos	48	IMBL	5	0.5	1.06	2.8
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Prometon	48	IMBL	3	25,700	38,000	59,800
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Prometryne	48	IMBL	2	9,700	14,145	18,590
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Propachlor	48	IMBL	3	6,900	7,800	13,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Propanil	48	IMBL	2	1,200	3,950	6,700
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Propargite	48	IMBL	2	74	82.5	91
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Propiconazole	48	IMBL	3	3,200	4,800	11,300
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Propoxur	48	IMBL	2	11	19.1	27.2
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Simazine	48	IMBL	2	1,100	1,100	1,100
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Sulfometuron-methyl	48	IMBL	3	12,500	150,000	1,000,000
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Sulfotepp (Dithion)	48	IMBL	1	—	2.5	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Sulprofos	48	IMBL	3	0.75	0.83	5.1
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Tebupirimphos (tebupirimfos)	48	IMBL	3	0.078	0.188	0.19
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Tebuthiuron	48	IMBL	1	—	297,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Tefluthrin	48	IMBL	2	0.07	0.1275	0.185
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Temephos	48	IMBL	2	0.011	0.2755	0.54
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Terbacil	48	IMBL	1	—	65,000	—
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Terbufos	48	IMBL	4	0.31	3.35	13
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Terbuthylazine	48	IMBL	2	5,000	13,100	21,200
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Thiobencarb	48	IMBL	4	101	335	1,200
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Triallate	48	IMBL	2	91	260.5	430
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Tribufos (tribuphos)	48	IMBL	3	6.8	61	110
EC_{50}	Cladocera	*Daphnia magna*	Water flea	Trifluralin	48	IMBL	1	—	560	—
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	2,4-D	48	IMBL	1	—	3,200	—
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	4,6-Dinitro-2-methylphenol (DNOC)	48	IMBL	1	—	145	—
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Alachlor	48	IMBL	2	9,000	9,700	10,400
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Atrazine	48	IMBL	2	36,500	41,500	46,500
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Carbaryl	48	IMBL	3	6.4	6.4	6.4
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Carbofuran	48	IMBL	2	35	40	45
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Diazinon	48	IMBL	3	0.8	0.8	0.9
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Dichlobenil	48	IMBL	2	3,700	3,700	3,700
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Dichlorvos	48	IMBL	2	0.066	0.068	0.07
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Dieldrin	48	IMBL	3	190	250	251
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Diuron	48	IMBL	3	1,400	1,400	1,400
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Ethion	48	IMBL	1	—	2.8	—
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Ethyl parathion (parathion)	48	IMBL	3	0.6	0.6	0.6
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Fenthion	48	IMBL	1	—	0.8	—
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Lindane (gamma-HCH)	48	IMBL	3	460	460	460

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Malathion	48	IMBL	3	1.8	1.8	1.8
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Propanil	48	IMBL	1	—	11,400	—
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Propham	48	IMBL	2	8,000	9,000	10,000
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	Trifluralin	48	IMBL	3	240	625	625
EC_{50}	Cladocera	*Moina australiensis*	Water flea	Molinate	48	IMBL	1	—	2,400	—
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	2,4-D	48	IMBL	1	—	4,900	—
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Carbaryl	48	IMBL	2	7.6	7.6	7.6
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Diazinon	48	IMBL	3	1.4	1.4	1.8
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Dichlobenil	48	IMBL	3	5,800	5,800	5,800
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Dichlorvos	48	IMBL	2	0.26	0.27	0.28
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Dicrotophos	48	IMBL	1	—	270	—
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Dieldrin	48	IMBL	3	190	240	240
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Diuron	48	IMBL	2	2,000	2,000	2,000
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Ethion	48	IMBL	1	—	4.7	—
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Ethyl parathion (parathion)	48	IMBL	4	0.37	0.42	0.47
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Fenthion	48	IMBL	2	0.62	0.77	0.92
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Lindane (gamma-HCH)	48	IMBL	4	520	520	880
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Malathion	48	IMBL	4	0.59	3.5	6.2
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Methyl parathion	48	IMBL	2	0.37	0.37	0.37
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Propham	48	IMBL	2	10,000	10,000	10,000
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	Trifluralin	48	IMBL	3	450	900	900
EC_{50}	Cladocera	*Simocephalus sp.*	Water flea	Diazinon	48	IMBL	1	—	1.4	—
EC_{50}	Cladocera	*Simocephalus sp.*	Water flea	Diuron	48	IMBL	1	—	2,000	—
EC_{50}	Cladocera	*Simocephalus vetulus*	Water flea	Chlorpyrifos	48	IMBL	1	—	0.4	—
LC_{50}	Copepoda	*Acartia tonsa*	Calanoid copepod	Atrazine	96	MORT	1	—	94	—
LC_{50}	Copepoda	*Acartia tonsa*	Calanoid copepod	Lindane (gamma-HCH)	96	MORT	1	—	17	—
LC_{50}	Copepoda	*Acartia tonsa*	Calanoid copepod	Methomyl	96	MORT	1	—	410	—
LC_{50}	Insecta	*Acroneuria ruralis*	Stonefly	Diazinon	96	MORT	1	—	16	—
LC_{50}	Insecta	*Acroneuria sp*	Stonefly	Atrazine	96	MORT	1	—	6,700	—
LC_{50}	Insecta	*Aedes aegypti*	Yellow fever mosquito	3,4-Dichloroaniline	96	MORT	6	3.4	6.4	6.9

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Insecta	*Aedes aegypti*	Yellow fever mosquito	Cypermethrin	96	MORT	1	—	0.71	—
LC_{50}	Insecta	*Aedes excrucians*	Mosquito	Temephos	96	MORT	1	—	0.44	—
LC_{50}	Insecta	*Aedes stimulans*	Mosquito	Cypermethrin	96	MORT	2	0.158	0.1935	0.229
LC_{50}	Insecta	*Aedes stimulans*	Mosquito	Temephos	96	MORT	2	3.16	4.355	5.55
LC_{50}	Mollusca	*Anodonta anatina*	Fresh-water mussel	Malathion	96	MORT	1	—	80	—
LC_{50}	Insecta	*Arctopsyche grandis*	Caddisfly	Ethyl parathion (parathion)	96	MORT	2	7	7	7
LC_{50}	Insecta	*Arctopsyche grandis*	Caddisfly	Malathion	96	MORT	2	32	32	32
LC_{50}	Anostraca	*Artemia salina*	Brine shrimp	alpha-HCH	96	MORT	1	—	500	—
LC_{50}	Anostraca	*Artemia salina*	Brine shrimp	Dieldrin	96	MORT	2	65	82.5	100
LC_{50}	Isopoda	*Asellus aquaticus*	Aquatic sowbug	Lindane (gamma-HCH)	96	MORT	1	—	375	—
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Azinphos-methyl	96	MORT	3	21	21	21
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Carbaryl	96	MORT	3	240	280	280
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Dichlobenil	96	MORT	2	35,000	35,000	35,000
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Dieldrin	96	MORT	2	5	5	5
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Diphenamid	96	MORT	1	—	100,000	—
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Diuron	96	MORT	1	—	15,500	—
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	EPTC	96	MORT	2	23,000	23,000	23,000
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Ethyl parathion (parathion)	96	MORT	3	213	600	2,130
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Fenthion	96	MORT	1	—	1,800	—
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Lindane (gamma-HCH)	96	MORT	3	10	10	10
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Malathion	96	MORT	3	3,000	3,000	3,000
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Oryzalin	96	MORT	1	—	400	—
LC_{50}	Isopoda	*Asellus brevicaudus*	Aquatic sowbug	Phosmet	96	MORT	2	72	81	90
LC_{50}	Isopoda	*Asellus communis*	Aquatic sowbug	Diazinon	96	MORT	1	—	21	—
LC_{50}	Insecta	*Atherix variegata*	Snipefly	Malathion	96	MORT	2	385	385	385
LC_{50}	Insecta	*Baetis intermedius*	Mayfly	Diazinon	96	MORT	1	—	24	—
LC_{50}	Insecta	*Baetis rhodani*	Mayfly	Cypermethrin	96	MORT	1	—	0.012	—
LC_{50}	Insecta	*Baetis rhodani*	Mayfly	Propiconazole	96	MORT	1	—	900	—
LC_{50}	Mollusca	*Bellamya bengalensis*	Snail	Dichlorvos	96	MORT	1	—	0.0214	—
LC_{50}	Mollusca	*Bellamya dissimilis*	Snail	Dichlorvos	96	MORT	1	—	20,890	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Insecta	*Brachythermis contaminata*	Dragonfly	Carbaryl	96	MORT	1	—	6,933	—
LC_{50}	Insecta	*Brachythermis contaminata*	Dragonfly	Carbofuran	96	MORT	1	—	0.119	—
LC_{50}	Annelida	*Branchiura sowerbyi*	Worm	Malathion	96	MORT	1	—	4,570	—
LC_{50}	Decapoda	*Caridina rajadhari*	Freshwater prawn	Carbofuran	96	MORT	1	—	0.3324	—
LC_{50}	Decapoda	*Caridina rajadhari*	Freshwater prawn	Lindane (gamma-HCH)	96	MORT	1	—	31.34	—
LC_{50}	Insecta	*Chaoborus flavicans*	Midge	Lindane (gamma-HCH)	96	MORT	1	—	4	—
LC_{50}	Insecta	*Chaoborus obscuripes*	Midge	Chlorpyrifos	96	MORT	1	—	6.6	—
LC_{50}	Insecta	*Chaoborus sp*	Phantom midge	Lindane (gamma-HCH)	96	MORT	1	—	3.3	—
LC_{50}	Insecta	*Chironomus plumosus*	Midge	Lindane (gamma-HCH)	96	MORT	3	12.67	13.47	51.16
LC_{50}	Insecta	*Chironomus plumosus*	Midge	Methomyl	96	MORT	1	—	32	—
LC_{50}	Insecta	*Chironomus riparius*	Midge	Lindane (gamma-HCH)	96	MORT	5	1.55	6.94	235
LC_{50}	Insecta	*Chironomus tentans*	Midge	Azinphos-methyl	96	MORT	1	—	0.37	—
LC_{50}	Insecta	*Chironomus tentans*	Midge	Chlorpyrifos	96	MORT	1	—	0.47	—
LC_{50}	Insecta	*Chironomus tentans*	Midge	Diazinon	96	MORT	2	0.03	5.365	10.7
LC_{50}	Insecta	*Chironomus tentans*	Midge	Dichlorvos	96	MORT	1	—	17.6	—
LC_{50}	Insecta	*Chironomus tentans*	Midge	Ethyl parathion (parathion)	96	MORT	1	—	31	—
LC_{50}	Insecta	*Chironomus tentans*	Midge	Profenofos	96	MORT	1	—	86	—
LC_{50}	Insecta	*Chironomus thummi*	Midge	3,4-Dichloroaniline	96	MORT	2	4	3,702	7,400
LC_{50}	Insecta	*Claassenia sabulosa*	Stonefly	Carbaryl	96	MORT	3	5.6	5.6	5.6
LC_{50}	Insecta	*Claassenia sabulosa*	Stonefly	Chlorpyrifos	96	MORT	3	0.57	0.57	0.57
LC_{50}	Insecta	*Claassenia sabulosa*	Stonefly	Dieldrin	96	MORT	2	0.58	0.59	0.6
LC_{50}	Insecta	*Claassenia sabulosa*	Stonefly	Ethyl parathion (parathion)	96	MORT	3	1.5	1.5	1.5
LC_{50}	Insecta	*Claassenia sabulosa*	Stonefly	Malathion	96	MORT	4	2.8	2.8	56
LC_{50}	Insecta	*Cloeon dipterum*	Mayfly	Chlorpyrifos	96	MORT	1	—	0.3	—
LC_{50}	Insecta	*Cloeon dipterum*	Mayfly	Cypermethrin	96	MORT	1	—	0.03	—
LC_{50}	Insecta	*Cloeon sp*	Mayfly	Lindane (gamma-HCH)	96	MORT	1	—	50	—
LC_{50}	Mollusca	*Corbicula fluminea*	Asiatic clam	Methiocarb	96	MORT	1	—	8,800	—
LC_{50}	Mollusca	*Corbicula manilensis*	Asiatic clam	Methiocarb	96	MORT	1	—	8,800	—
LC_{50}	Insecta	*Corixa punctata*	Water boatman	Chlorpyrifos	96	MORT	2	1.94	1.97	2
LC_{50}	Copepoda	*Cyclops strenuus*	Copepod	Methomyl	96	MORT	1	—	190	—
LC_{50}	Ostracoda	*Cypridopsis vidua*	Seed shrimp	Lindane (gamma-HCH)	96	MORT	1	—	3.2	—
LC_{50}	Insecta	*Drunella grandis*	Mayfly	Azinphos-methyl	96	MORT	1	—	14	—
LC_{50}	Insecta	*Drunella grandis*	Mayfly	Dieldrin	96	MORT	1	—	8	—
LC_{50}	Insecta	*Drunella grandis*	Mayfly	Disulfoton	96	MORT	1	—	78	—
LC_{50}	Insecta	*Drunella grandis*	Mayfly	Ethyl parathion (parathion)	96	MORT	1	—	3	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Insecta	*Drunella grandis*	Mayfly	Fenthion	96	MORT	1	—	25	—
LC_{50}	Insecta	*Drunella grandis*	Mayfly	Malathion	96	MORT	1	—	100	—
LC_{50}	Turbellaria	*Dugesia tigrina*	Flatworm	Diazinon	96	MORT	1	—	630	—
LC_{50}	Turbellaria	*Dugesia tigrina*	Flatworm	Malathion	96	MORT	1	—	4,400	—
LC_{50}	Turbellaria	*Dugesia tigrina*	Flatworm	Methyl parathion	96	MORT	2	2,600	3,350	4,100
LC_{50}	Amphipoda	*Echinogammarus tibaldii*	Scud	Bendiocarb	96	MORT	1	—	11	—
LC_{50}	Amphipoda	*Echinogammarus tibaldii*	Scud	Fenamiphos	96	MORT	1	—	11	—
LC_{50}	Mollusca	*Egeria radiata*	Freshwater Clam	Lindane (gamma-HCH)	96	MORT	1	—	145,000	—
LC_{50}	Copepoda	*Eudiaptomus gracilis*	Calanoid copepod	2,4-D	96	MORT	1	—	144,100	—
LC_{50}	Copepoda	*Eurytemora affinis*	Calanoid copepod	Atrazine	96	MORT	3	500	2,600	13,200
LC_{50}	Copepoda	*Eurytemora affinis*	Calanoid copepod	Methomyl	96	MORT	1	—	290	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	2,4-D	96	MORT	1	—	2,400	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	4,6-Dinitro-2-methylphenol (DNOC)	96	MORT	1	—	1,100	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Azinphos-methyl	96	MORT	4	0.1	0.125	0.38
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Benfluralin	96	MORT	2	1,100	1,100	1,100
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Butylate	96	MORT	4	10,000	11,000	15,000
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Carbaryl	96	MORT	3	26	26	26
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Chlorpyrifos	96	MORT	1	—	0.32	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Cyanazine	96	MORT	2	2,000	2,000	2,000
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Cycloate	96	MORT	4	2,600	2,600	2,600
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Diazinon	96	MORT	2	0.2	0.2	0.2
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Dichlobenil	96	MORT	1	—	10,000	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Dichlorvos	96	MORT	2	0.4	200,000.2	400,000
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Dicrotophos	96	MORT	1	—	2,600	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Dieldrin	96	MORT	3	600	640	640
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Dinoseb	96	MORT	1	—	1,800	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Diphenamid	96	MORT	2	100,000	100,000	100,000
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Disulfoton	96	MORT	5	21	52	27,000
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Diuron	96	MORT	3	160	160	700
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	EPTC	96	MORT	4	23,000	44,500	66,000
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Ethion	96	MORT	2	1.8	5.6	9.4
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Ethyl parathion (parathion)	96	MORT	10	0.25	1.3	4.5
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Fenthion	96	MORT	1	—	110	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Lindane (gamma-HCH)	96	MORT	4	10	10	11
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Malathion	96	MORT	5	0.5	0.76	0.9
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Methyl parathion	96	MORT	2	3.8	3.8	3.8
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Molinate	96	MORT	2	300	2,400	4,500

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Oryzalin	96	MORT	1	—	190	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Pebulate	96	MORT	2	10,000	10,000	10,000
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Phorate	96	MORT	6	0.6	0.68	4
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Phosmet	96	MORT	2	2	3.1	4.2
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Picloram	96	MORT	1	—	27	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Propanil	96	MORT	1	—	16,000	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Propham	96	MORT	1	—	19,000	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Propoxur	96	MORT	1	—	50	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Tribufos (tribuphos)	96	MORT	1	—	100	—
LC_{50}	Amphipoda	*Gammarus fasciatus*	Scud	Trifluralin	96	MORT	3	1,000	2,200	2,200
LC_{50}	Amphipoda	*Gammarus fossarum*	Scud	Ethyl parathion (parathion)	96	MORT	1	—	2.52	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Alachlor	96	MORT	1	—	19,700	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Aldicarb	96	MORT	1	—	420	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Atrazine	96	MORT	1	—	10,100	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Azinphos-methyl	96	MORT	1	—	0.24	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Bendiocarb	96	MORT	1	—	43	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Carbaryl	96	MORT	1	—	28	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Carbofuran	96	MORT	1	—	12	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Fenamiphos	96	MORT	1	—	20	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Lindane (gamma-HCH)	96	MORT	1	—	26	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Methomyl	96	MORT	1	—	47	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Methyl parathion	96	MORT	1	—	2.9	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Molinate	96	MORT	1	—	2,200	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Oxamyl	96	MORT	1	—	220	—
LC_{50}	Amphipoda	*Gammarus italicus*	Scud	Propoxur	96	MORT	1	—	50	—
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Azinphos-methyl	96	MORT	4	0.126	0.138	0.15
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Carbaryl	96	MORT	3	16	22	22
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Chlorpyrifos	96	MORT	3	0.11	0.11	0.11
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Diazinon	96	MORT	2	170	185	200
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Dicamba	96	MORT	2	3,900	3,900	3,900
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Dichlobenil	96	MORT	3	11,000	11,000	11,000
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Dichlorvos	96	MORT	1	—	0.5	—
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Dicrotophos	96	MORT	1	—	540	—
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Dieldrin	96	MORT	3	460	700	700
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Disulfoton	96	MORT	3	52	240	240
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Diuron	96	MORT	1	—	160	—
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Ethion	96	MORT	1	—	1.8	—
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Ethyl parathion (parathion)	96	MORT	5	3.5	3.5	12.8
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Fenthion	96	MORT	2	8.4	11.1	13.8
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Lindane (gamma-HCH)	96	MORT	3	48	88	88
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Malathion	96	MORT	3	1.62	1.62	1.8

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Molinate	96	MORT	1	—	4,500	—
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Phorate	96	MORT	2	9	9	9
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Propham	96	MORT	1	—	10,000	—
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Propiconazole	96	MORT	2	1,300	1,300	1,300
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Propoxur	96	MORT	3	34	34	34
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Simazine	96	MORT	2	13,000	13,000	13,000
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Temephos	96	MORT	4	80	81	640
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Tribufos (tribuphos)	96	MORT	1	—	100	—
LC_{50}	Amphipoda	*Gammarus lacustris*	Scud	Trifluralin	96	MORT	1	—	2,200	—
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Carbaryl	96	MORT	5	7	13	16
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Chlorpyrifos	96	MORT	1	—	0.18	—
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	DCPA (Dacthal)	96	MORT	1	—	6,200	—
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Diazinon	96	MORT	1	—	2	—
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Methomyl	96	MORT	6	720	920	1,050
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Permethrin	96	MORT	1	—	0.17	—
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Profenofos	96	MORT	2	0.8	1.3	1.8
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Terbufos	96	MORT	3	0.17	0.2	1.25
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Thiobencarb	96	MORT	3	720	1,000	1,000
LC_{50}	Amphipoda	*Gammarus pseudolimnaeus*	Scud	Tribufos (tribuphos)	96	MORT	1	—	27	—
LC_{50}	Amphipoda	*Gammarus pulex*	Scud	Atrazine	96	MORT	1	—	14,900	—
LC_{50}	Amphipoda	*Gammarus pulex*	Scud	Carbofuran	96	MORT	1	—	9	—
LC_{50}	Amphipoda	*Gammarus pulex*	Scud	Chlorpyrifos	96	MORT	1	—	0.07	—
LC_{50}	Amphipoda	*Gammarus pulex*	Scud	Ethyl parathion (parathion)	96	MORT	1	—	3.21	—
LC_{50}	Amphipoda	*Gammarus pulex*	Scud	Lindane (gamma-HCH)	96	MORT	8	5.5	18.8	225
LC_{50}	Amphipoda	*Gammarus pulex*	Scud	Methomyl	96	MORT	1	—	760	—
LC_{50}	Insecta	*Heptagenia sulphurea*	Mayfly	Propiconazole	96	MORT	2	1,000	1,000	1,000
LC_{50}	Insecta	*Hesperoperla pacifica*	Golden stonefly	Azinphos-methyl	96	MORT	2	8.5	8.5	8.5
LC_{50}	Insecta	*Hesperoperla pacifica*	Golden stonefly	Dieldrin	96	MORT	2	24	24	24
LC_{50}	Insecta	*Hesperoperla pacifica*	Golden stonefly	Disulfoton	96	MORT	3	8.2	8.2	9.4
LC_{50}	Insecta	*Hesperoperla pacifica*	Golden stonefly	Ethyl parathion (parathion)	96	MORT	4	1	2.8	3
LC_{50}	Insecta	*Hesperoperla pacifica*	Golden stonefly, Willow fly	Fenthion	96	MORT	1	—	5.1	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Insecta	*Hesperoperla pacifica*	Golden stonefly	Malathion	96	MORT	4	7	7.1	7.7
LC_{50}	Insecta	*Hexagenia bilineata*	Mayfly	Ethyl parathion (parathion)	96	MORT	2	15	15	15
LC_{50}	Insecta	*Hexagenia bilineata*	Mayfly	Permethrin	96	MORT	1	—	0.1	—
LC_{50}	Insecta	*Hexagenia sp.*	Mayfly	Phorate	96	MORT	1	—	65	—
LC_{50}	Amphipoda	*Hyalella azteca*	Scud	Atrazine	96	MORT	1	—	14,700	—
LC_{50}	Amphipoda	*Hyalella azteca*	Scud	Azinphos-methyl	96	MORT	1	—	0.29	—
LC_{50}	Amphipoda	*Hyalella azteca*	Scud	Chlorpyrifos	96	MORT	2	0.04	0.09	0.14
LC_{50}	Amphipoda	*Hyalella azteca*	Scud	Diazinon	96	MORT	1	—	6.51	—
LC_{50}	Amphipoda	*Hyalella azteca*	Scud	Dichlorvos	96	MORT	1	—	53.3	—
LC_{50}	Insecta	*Hydropsyche angustipennis*	Caddisfly	Lindane (gamma-HCH)	96	MORT	1	—	330	—
LC_{50}	Insecta	*Hydropsyche californica*	Caddisfly	Ethyl parathion (parathion)	96	MORT	2	0.43	0.43	0.43
LC_{50}	Insecta	*Hydropsyche californica*	Caddisfly	Malathion	96	MORT	2	22.5	22.5	22.5
LC_{50}	Insecta	*Hydropsyche siltalai*	Caddisfly	Propiconazole	96	MORT	3	1,200	1,200	1,200
LC_{50}	Insecta	*Hydropsyche sp.*	Caddisfly	Malathion	96	MORT	2	5	5	5
LC_{50}	Insecta	*Hydropsyche sp.*	Caddisfly	Methiocarb	96	MORT	1	—	14	—
LC_{50}	Insecta	*Ischnura sp.*	Damselfly	Methyl parathion	96	MORT	1	—	33	—
LC_{50}	Insecta	*Ischnura verticalis*	Damselfly	Dieldrin	96	MORT	1	—	12	—
LC_{50}	Insecta	*Ischnura verticalis*	Damselfly	Ethyl parathion (parathion)	96	MORT	2	0.64	0.64	0.64
LC_{50}	Insecta	*Ischnura verticalis*	Damselfly	Methyl parathion	96	MORT	1	—	33	—
LC_{50}	Insecta	*Isogenus sp.*	Stonefly	Carbaryl	96	MORT	1	—	3.6	—
LC_{50}	Insecta	*Isogenus sp.*	Stonefly	Methomyl	96	MORT	2	29	186	343
LC_{50}	Insecta	*Isonychia sp*	Mayfly	Methiocarb	96	MORT	1	—	7	—
LC_{50}	Insecta	*Isoperla sp.*	Stonefly	Malathion	96	MORT	2	0.69	0.69	0.69
LC_{50}	Mollusca	*Lamellidens corrianus*	Bivalve	Malathion	96	MORT	4	118.55	184.485	284.11
LC_{50}	Insecta	*Leptoceridae*	Longhorn caddisfly family	Chlorpyrifos	96	MORT	1	—	0.77	—
LC_{50}	Insecta	*Lestes congener*	Damselfly	Diazinon	96	MORT	1	—	50	—
LC_{50}	Insecta	*Lestes congener*	Damselfly	Dieldrin	96	MORT	1	—	3	—
LC_{50}	Insecta	*Lestes congener*	Damselfly	Ethyl parathion (parathion)	96	MORT	1	—	3	—
LC_{50}	Insecta	*Lestes congener*	Damselfly	Lindane (gamma-HCH)	96	MORT	1	—	20	—
LC_{50}	Insecta	*Lestes congener*	Damselfly	Malathion	96	MORT	2	10	10	10
LC_{50}	Insecta	*Lestes congener*	Damselfly	Propoxur	96	MORT	1	—	300	—
LC_{50}	Insecta	*Limnephilus bipunctatus*	Caddisfly	Ethyl parathion (parathion)	96	MORT	1	—	37.9	—
LC_{50}	Insecta	*Limnephilus lunatus*	Caddisfly	Ethyl parathion (parathion)	96	MORT	1	—	2.4	—
LC_{50}	Insecta	*Limnephilus lunatus*	Caddisfly	Lindane (gamma-HCH)	96	MORT	1	—	9.6	—
LC_{50}	Insecta	*Limnephilus sp.*	Caddisfly	Malathion	96	MORT	1	—	1.3	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Annelida	*Limnodrilus hoffmeisteri*	Worm	Carbofuran	96	MORT	1	—	5,294	—
LC_{50}	Annelida	*Limnodrilus hoffmeisteri*	Worm	Lindane (gamma-HCH)	96	MORT	1	—	6,233	—
LC_{50}	Annelida	*Lumbriculus variegatus*	Worm	Diazinon	96	MORT	1	—	6,160	—
LC_{50}	Annelida	*Lumbriculus variegatus*	Worm	Propoxur	96	MORT	1	—	146,000	—
LC_{50}	Mollusca	*Lymnaea acuminata*	Pond snail	Aldicarb	96	MORT	1	—	11,500	—
LC_{50}	Mollusca	*Lymnaea acuminata*	Pond snail	Carbaryl	96	MORT	2	4,400	4,450	4,500
LC_{50}	Mollusca	*Lymnaea acuminata*	Pond snail	Carbofuran	96	MORT	1	—	3,097	—
LC_{50}	Mollusca	*Lymnaea acuminata*	Pond snail	Cypermethrin	96	MORT	1	—	360	—
LC_{50}	Mollusca	*Lymnaea acuminata*	Pond snail	Dichlorvos	96	MORT	1	—	7	—
LC_{50}	Mollusca	*Lymnaea acuminata*	Pond snail	Lindane (gamma-HCH)	96	MORT	1	—	2,685	—
LC_{50}	Mollusca	*Lymnaea acuminata*	Pond snail	Phorate	96	MORT	2	15,000	18,500	22,000
LC_{50}	Mollusca	*Lymnaea stagnalis*	Great pond snail	Lindane (gamma-HCH)	96	MORT	1	—	3,300	—
LC_{50}	Decapoda	*Macrobrachium dayanum*	Freshwater prawn	Carbaryl	96	MORT	1	—	35.2	—
LC_{50}	Decapoda	*Macrobrachium lamarrei*	Prawn	Dichlorvos	96	MORT	1	—	881	—
LC_{50}	Decapoda	*Macrobrachium malcolmsonii*	Monsson River prawn	Dichlorvos	96	MORT	1	—	12.589	—
LC_{50}	Decapoda	*Macrobrachium rosenbergii*	Giant river prawn	Cypermethrin	96	MORT	1	—	0.031	—
LC_{50}	Decapoda	*Macrobrachium rosenbergii*	Giant river prawn	Malathion	96	MORT	2	9	11	13
LC_{50}	Mollusca	*Melanoides tuberculata*	Snail	Cypermethrin	96	MORT	1	—	2,800	—
LC_{50}	Nematoda	*Monhystera disjuncta*	Nematode	Lindane (gamma-HCH)	96	MORT	1	—	6,700	—
LC_{50}	Mysidacea	*Neomysis mercedis*	Opposum Shrimp	Carbofuran	96	MORT	4	2.7	12.85	27
LC_{50}	Mysidacea	*Neomysis mercedis*	Opposum Shrimp	Malathion	96	MORT	4	1.4	1.85	3.8
LC_{50}	Mysidacea	*Neomysis mercedis*	Opposum Shrimp	Methyl parathion	96	MORT	2	0.2	0.205	0.21
LC_{50}	Insecta	*Neoplea striola*	Pygmy back-swimmer	Chlorpyrifos	96	MORT	2	1.22	1.39	1.56
LC_{50}	Insecta	*Notonecta undulata*	Backswimmer	Carbaryl	96	MORT	1	—	200	—
LC_{50}	Insecta	*Notonecta undulata*	Backswimmer	Dichlorvos	96	MORT	1	—	20	—
LC_{50}	Insecta	*Notonecta undulata*	Backswimmer	Dieldrin	96	MORT	1	—	1	—
LC_{50}	Insecta	*Notonecta undulata*	Backswimmer	Ethyl parathion (parathion)	96	MORT	1	—	7	—
LC_{50}	Insecta	*Notonecta undulata*	Backswimmer	Lindane (gamma-HCH)	96	MORT	1	—	3	—
LC_{50}	Insecta	*Notonecta undulata*	Backswimmer	Malathion	96	MORT	1	—	80	—
LC_{50}	Insecta	*Notonecta undulata*	Backswimmer	Propoxur	96	MORT	1	—	160	—
LC_{50}	Insecta	*Ophiogomphus sp*	Dragonfly	Carbofuran	96	MORT	1	—	220	—
LC_{50}	Decapoda	*Orconectes immunis*	Crayfish	Carbaryl	96	MORT	1	—	2,870	—
LC_{50}	Decapoda	*Orconectes immunis*	Crayfish	Chlorpyrifos	96	MORT	1	—	6	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Carbaryl	96	MORT	2	8.6	504.3	1,000
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Cypermethrin	96	MORT	1	—	0.069	—
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Dicrotophos	96	MORT	2	5,500	5,750	6,000
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Dieldrin	96	MORT	2	740	740	740
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Ethyl parathion (parathion)	96	MORT	4	0.036	0.04	15
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Fenthion	96	MORT	2	50	130	210
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Malathion	96	MORT	3	50	180	180
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Methyl parathion	96	MORT	2	15	15	15
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Phorate	96	MORT	2	50	50	50
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Thiobencarb	96	MORT	1	—	2,000	—
LC_{50}	Decapoda	*Orconectes nais*	Crayfish	Tribufos (tribuphos)	96	MORT	1	—	5,600	—
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Glass shrimp	Azinphos-methyl	96	MORT	5	0.13	0.2	1.2
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp	Carbaryl	96	MORT	4	5.6	5.6	120
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp	Dieldrin	96	MORT	1	—	20	—
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp, freshwater prawn	Diphenamid	96	MORT	2	32,000	32,000	32,000
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp	Disulfoton	96	MORT	3	3.9	3.9	38
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp, freshwater prawn	Ethion	96	MORT	2	5.6	5.65	5.7
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp	Ethyl parathion (parathion)	96	MORT	4	1.5	1.5	5
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp, freshwater prawn	Fenthion	96	MORT	2	5.8	7.9	10
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp	Malathion	96	MORT	4	12	51	90
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Glass shrimp	Methiocarb	96	MORT	2	110	110	110
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Grass shrimp	Molinate	96	MORT	1	—	15,900	—
LC_{50}	Decapoda	*Palaemonetes kadiakensis*	Glass shrimp	Trifluralin	96	MORT	1	—	37	—
LC_{50}	Decapoda	*Palaemonetes pugio*	Daggerblade grass shrimp	Atrazine	96	MORT	1	—	9,000	—
LC_{50}	Decapoda	*Palaemonetes pugio*	Daggerblade grass shrimp	Azinphos-methyl	96	MORT	1	—	1.34	—
LC_{50}	Decapoda	*Palaemonetes pugio*	Daggerblade grass shrimp	Chlorpyrifos	96	MORT	4	0.37	0.565	83

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Decapoda	*Palaemonetes pugio*	Daggerblade grass shrimp	Lindane (gamma-HCH)	96	MORT	2	4.4	4.42	4.44
LC_{50}	Decapoda	*Palaemonetes pugio*	Daggerblade grass shrimp	Malathion	96	MORT	1	—	10.43	—
LC_{50}	Decapoda	*Palaemonetes pugio*	Daggerblade grass shrimp	Propargite	96	MORT	1	—	101	—
LC_{50}	Decapoda	*Palaemonetes pugio*	Daggerblade grass shrimp	Thiobencarb	96	MORT	1	—	380	—
LC_{50}	Decapoda	*Palaemonetes pugio*	Daggerblade grass shrimp	Trifluralin	96	MORT	1	—	638.5	—
LC_{50}	Decapoda	*Palaemonetes sp*	Grass shrimp	Terbufos	96	MORT	12	4.6	5.65	12
LC_{50}	Decapoda	*Palaemonetes vulgaris*	Marsh grass shrimp	Dieldrin	96	MORT	1	—	50	—
LC_{50}	Decapoda	*Palaemonetes vulgaris*	Marsh grass shrimp	Lindane (gamma-HCH)	96	MORT	1	—	10	—
LC_{50}	Decapoda	*Palaemonetes vulgaris*	Marsh grass shrimp	Malathion	96	MORT	1	—	82	—
LC_{50}	Decapoda	*Palaemonetes vulgaris*	Marsh grass shrimp	Methomyl	96	MORT	1	—	49	—
LC_{50}	Decapoda	*Palaemonetes vulgaris*	Marsh grass shrimp	Methyl parathion	96	MORT	1	—	3	—
LC_{50}	Insecta	*Paraleptophlebia pallipes*	Mayfly	Diazinon	96	MORT	1	—	44	—
LC_{50}	Insecta	*Peltodytes sp*	Beetle	Carbaryl	96	MORT	1	—	3,300	—
LC_{50}	Insecta	*Peltodytes sp*	Beetle	Chlorpyrifos	96	MORT	1	—	0.8	—
LC_{50}	Insecta	*Peltodytes sp*	Beetle	Dichlorvos	96	MORT	1	—	300	—
LC_{50}	Insecta	*Peltodytes sp*	Beetle	Dieldrin	96	MORT	1	—	2	—
LC_{50}	Insecta	*Peltodytes sp*	Beetle	Ethyl parathion (parathion)	96	MORT	1	—	7	—
LC_{50}	Insecta	*Peltodytes sp*	Beetle	Lindane (gamma-HCH)	96	MORT	1	—	20	—
LC_{50}	Insecta	*Peltodytes sp*	Beetle	Malathion	96	MORT	1	—	1,000	—
LC_{50}	Insecta	*Peltodytes sp*	Beetle	Propoxur	96	MORT	1	—	8,000	—
LC_{50}	Mollusca	*Physa fontinalis*	Bladder snail	Propiconazole	96	MORT	1	—	1,300	—
LC_{50}	Mollusca	*Physa virgata*	Snail	Dichlorvos	96	MORT	1	—	170	—
LC_{50}	Turbellaria	*Polycelis felina*	Flatworm	*p,p′*-DDE	96	MORT	1	—	1,050	—
LC_{50}	Decapoda	*Procambarus acutus acutus*	White river crayfish	Azinphos-methyl	96	MORT	1	—	40	—
LC_{50}	Decapoda	*Procambarus acutus acutus*	White river crayfish	Carbaryl	96	MORT	1	—	500	—
LC_{50}	Decapoda	*Procambarus acutus acutus*	White river crayfish	Carbofuran	96	MORT	1	—	500	—
LC_{50}	Decapoda	*Procambarus acutus acutus*	White river crayfish	Chlorpyrifos	96	MORT	1	—	2	—
LC_{50}	Decapoda	*Procambarus acutus acutus*	White river crayfish	Dicrotophos	96	MORT	1	—	1,250	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Decapoda	*Procambarus acutus acutus*	White river crayfish	Malathion	96	MORT	1	—	50,000	—
LC_{50}	Decapoda	*Procambarus acutus acutus*	Crayfish	Methiocarb	96	MORT	2	1,300	1,300	1,300
LC_{50}	Decapoda	*Procambarus acutus acutus*	White river crayfish	Methomyl	96	MORT	1	—	1,000	—
LC_{50}	Decapoda	*Procambarus acutus acutus*	White river crayfish	Methyl parathion	96	MORT	1	—	3	—
LC_{50}	Decapoda	*Procambarus blandingii*	Crayfish	Permethrin	96	MORT	1	—	210	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Bendiocarb	96	MORT	1	—	5,550	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Bensulfuron-methyl	96	MORT	1	—	71,000	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Carbaryl	96	MORT	1	—	1,000	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Chlorpyrifos	96	MORT	1	—	21	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Malathion	96	MORT	1	—	49,170	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Methidathion	96	MORT	1	—	280	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Molinate	96	MORT	2	6,130	10,065	14,000
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Propoxur	96	MORT	1	—	1,430	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Sulfometuron-methyl	96	MORT	1	—	12,174,000	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Terbufos	96	MORT	1	—	5.9	—
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Thiobencarb	96	MORT	3	200	6,500	9,240
LC_{50}	Decapoda	*Procambarus clarkii*	Red swamp crayfish	Trifluralin	96	MORT	3	12,000	13,000	26,000
LC_{50}	Decapoda	*Procambarus simulans*	Crayfish	Carbaryl	96	MORT	1	—	2,430	—
LC_{50}	Decapoda	*Procambarus simulans*	Crayfish	Molinate	96	MORT	1	—	21,800	—
LC_{50}	Decapoda	*Procambarus sp.*	Crayfish	Alachlor	96	MORT	1	—	19,500	—
LC_{50}	Decapoda	*Procambarus sp.*	Crayfish	Azinphos-methyl	96	MORT	2	56	56	56
LC_{50}	Decapoda	*Procambarus sp.*	Crayfish	Carbaryl	96	MORT	2	1.9	950.95	1,900
LC_{50}	Decapoda	*Procambarus sp.*	Crayfish	Propiconazole	96	MORT	2	49,000	49,000	49,000
LC_{50}	Decapoda	*Procambarus sp.*	Crayfish	Terbufos	96	MORT	1	—	8	—
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	Carbaryl	96	MORT	6	1.7	6.35	29
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	Chlorpyrifos	96	MORT	1	—	0.38	—
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	Dieldrin	96	MORT	2	0.5	0.5	0.5
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	Ethyl parathion (parathion)	96	MORT	3	4.2	4.2	4.2
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	Fenthion	96	MORT	1	—	10.7	—
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	Malathion	96	MORT	3	1.1	1.1	1.1

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	Methomyl	96	MORT	3	60	60	69
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	Temephos	96	MORT	2	31	31	31
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, silvex)	96	MORT	1	—	340	—
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	2,4-D	96	MORT	2	1,600	8,300	15,000
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	2,4-DB	96	MORT	2	15,000	15,000	15,000
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	4,6-Dinitro-2-methylphenol (DNOC)	96	MORT	2	320	320	320
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Azinphos-methyl	96	MORT	5	1.5	1.9	22
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Carbaryl	96	MORT	4	2	4.8	4.8
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Chlorpyrifos	96	MORT	3	10	10	10
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Diazinon	96	MORT	3	25	25	25
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Dichlobenil	96	MORT	4	6,600	7,000	7,000
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Dichlorvos	96	MORT	1	—	0.1	—
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Dicrotophos	96	MORT	1	—	430	—
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Dieldrin	96	MORT	4	0.5	19.75	39
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Disulfoton	96	MORT	6	5	14.5	28.5
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Diuron	96	MORT	2	1,200	1,200	1,200
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Ethion	96	MORT	1	—	2.8	—
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Ethyl parathion (parathion)	96	MORT	8	5.1	18.7	100
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Fenthion	96	MORT	3	4.4	4.5	26.5
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Lindane (gamma-HCH)	96	MORT	5	1	4.5	4.5
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Malathion	96	MORT	5	10	50	100
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Methiocarb	96	MORT	4	5	5.4	5.4
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Molinate	96	MORT	3	340	340	370
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Phorate	96	MORT	1	—	4	—
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Picloram	96	MORT	2	48	24,024	48,000

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Propoxur	96	MORT	3	13	18	18
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Simazine	96	MORT	1	—	1,900	—
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Temephos	96	MORT	1	—	10	—
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Tribufos (tribuphos)	96	MORT	1	—	2,100	—
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	Trifluralin	96	MORT	4	2,800	2,900	3,000
LC_{50}	Insecta	*Pteronarcys sp.*	Stonefly	2,4-DB	96	MORT	1	—	15,000	—
LC_{50}	Insecta	*Pteronarcys sp.*	Stonefly	Diazinon	96	MORT	1	—	25	—
LC_{50}	Insecta	*Pteronarcys sp.*	Stonefly	Diuron	96	MORT	1	—	1,200	—
LC_{50}	Insecta	*Ranatra elongata*	Water scorpion	Carbaryl	96	MORT	1	—	624	—
LC_{50}	Insecta	*Sigara striata*	Corixidae	Lindane (gamma-HCH)	96	MORT	1	—	3.9	—
LC_{50}	Insecta	*Skwala sp.*	Stonefly	Carbaryl	96	MORT	2	3.6	6.4	9.2
LC_{50}	Insecta	*Skwala sp.*	Stonefly	Methomyl	96	MORT	3	29	29	34
LC_{50}	Insecta	*Sphaerodema sp.*	Giant waterbug	Dichlorvos	96	MORT	1	—	200	—
LC_{50}	Mollusca	*Thiara sp.*	Snail	Dichlorvos	96	MORT	1	—	8,700	—
LC_{50}	Mollusca	*Tilapia nilotica*	Nile tilapia	Cypermethrin	96	MORT	3	2	2.2	4
LC_{50}	Annelida	*Tubifex tubifex*	Worm	Carbaryl	96	MORT	1	—	50	—
LC_{50}	Annelida	*Tubifex tubifex*	Worm	Lindane (gamma-HCH)	96	MORT	2	3,500	3,700	3,900
LC_{50}	Annelida	*Tubifex tubifex*	Worm	Methyl parathion	96	MORT	1	—	500	—
LC_{50}	Annelida	*Tubificidae*	Worm	Dieldrin	96	MORT	1	—	6,710	—
LC_{50}	Annelida	*Tubificidae*	Worm	Ethyl parathion (parathion)	96	MORT	1	—	5,230	—
LC_{50}	Annelida	*Tubificidae*	Worm	Malathion	96	MORT	1	—	16,700	—
LC_{50}	Mollusca	*Viviparus bengalensis*	Snail	Fenthion	96	MORT	3	1.6	2	2.4
LC_{50}	Fish	*Abramis brama*	Bream	Dichlorvos	96	MORT	2	16,660	22,730	28,800
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Atrazine	96	MORT	1	—	35,000	—
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Azinphos-methyl	96	MORT	3	3,500	3,500	3,500
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Carbaryl	96	MORT	3	20,000	20,000	20,000
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Diazinon	96	MORT	1	—	8,000	—
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Fenthion	96	MORT	4	1,350	1,425	1,620
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Fluometuron	96	MORT	1	—	55,000	—
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Lindane (gamma-HCH)	96	MORT	3	64	64	64
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Malathion	96	MORT	3	11,700	12,900	12,900

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Metalaxyl	96	MORT	1	—	100,000	—
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Methidathion	96	MORT	1	—	30,000	—
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Methyl parathion	96	MORT	3	6,640	6,640	6,640
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Profenofos	96	MORT	1	—	20	—
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Prometon	96	MORT	1	—	20,000	—
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Simazine	96	MORT	1	—	65,000	—
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	Terbuthylazine	96	MORT	1	—	7,000	—
LC_{50}	Fish	*Ameiurus natalis*	Yellow bullhead	Simazine	96	MORT	1	—	110,000	—
LC_{50}	Fish	*Ameiurus nebulosus*	Brown bullhead	Molinate	96	MORT	1	—	34,000	—
LC_{50}	Fish	*Ameiurus sp.*	Bullhead catfish	Atrazine	96	MORT	2	7,600	21,300	35,000
LC_{50}	Fish	*Ameiurus sp.*	Bullhead catfish	Diazinon	96	MORT	1	—	8,000	—
LC_{50}	Fish	*Ameiurus sp.*	Bullhead catfish	Fluometuron	96	MORT	2	44,000	49,500	55,000
LC_{50}	Fish	*Ameiurus sp.*	Bullhead catfish	Prometon	96	MORT	1	—	20,000	—
LC_{50}	Fish	*Ameiurus sp.*	Bullhead catfish	Simazine	96	MORT	1	—	65,000	—
LC_{50}	Fish	*Anguilla anguilla*	European eel	Chlorpyrifos	96	MORT	1	—	540	—
LC_{50}	Fish	*Anguilla anguilla*	European eel	Diazinon	96	MORT	6	80	82.5	86
LC_{50}	Fish	*Anguilla anguilla*	European eel	Lindane (gamma-HCH)	96	MORT	10	320	545	680
LC_{50}	Fish	*Anguilla anguilla*	Common eel	Methidathion	96	MORT	1	—	1,510	—
LC_{50}	Fish	*Anguilla anguilla*	European eel	Methyl parathion	96	MORT	1	—	4,120	—
LC_{50}	Fish	*Anguilla rostrata*	American eel	2,4,5-T	96	MORT	1	—	43,700	—
LC_{50}	Fish	*Anguilla rostrata*	American eel	2,4-D	96	MORT	1	—	300,600	—
LC_{50}	Fish	*Anguilla rostrata*	American eel	Dieldrin	96	MORT	1	—	0.9	—
LC_{50}	Fish	*Anguilla rostrata*	American eel	Lindane (gamma-HCH)	96	MORT	1	—	56	—
LC_{50}	Fish	*Anguilla rostrata*	American eel	Malathion	96	MORT	2	82	291	500
LC_{50}	Fish	*Anguilla rostrata*	American eel	Methyl parathion	96	MORT	2	6,300	11,600	16,900
LC_{50}	Fish	*Barbus gonionotus*	Silver barb	Cypermethrin	96	MORT	2	0.4	1.8	3.2
LC_{50}	Fish	*Barbus gonionotus*	Silver barb	Fenthion	96	MORT	1	—	3,100	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Aldicarb	96	MORT	1	—	7,400	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Atrazine	96	MORT	1	—	60,000	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Azinphos-methyl	96	MORT	7	1,040	2,400	4,270
LC_{50}	Fish	*Carassius auratus*	Goldfish	Benfluralin	96	MORT	2	800	805	810
LC_{50}	Fish	*Carassius auratus*	Goldfish	Carbaryl	96	MORT	3	13,200	13,200	16,700
LC_{50}	Fish	*Carassius auratus*	Goldfish	Carbofuran	96	MORT	1	—	10,250	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Diazinon	96	MORT	1	—	9,000	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Carassius auratus*	Goldfish	Dichlobenil	96	MORT	2	7,680	7,740	7,800
LC_{50}	Fish	*Carassius auratus*	Goldfish	Dieldrin	96	MORT	2	1.8	21.4	41
LC_{50}	Fish	*Carassius auratus*	Goldfish	Diphenamid	96	MORT	2	53,000	53,150	53,300
LC_{50}	Fish	*Carassius auratus*	Goldfish	Disulfoton	96	MORT	2	7,200	7,200	7,200
LC_{50}	Fish	*Carassius auratus*	Goldfish	EPTC	96	MORT	1	—	26,670	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Ethalfluralin	96	MORT	1	—	260	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Ethoprop	96	MORT	2	7,700	10,650	13,600
LC_{50}	Fish	*Carassius auratus*	Goldfish	Ethyl parathion (parathion)	96	MORT	4	1,830	2,215	2,700
LC_{50}	Fish	*Carassius auratus*	Goldfish	Fenthion	96	MORT	2	2,780	3,092	3,404
LC_{50}	Fish	*Carassius auratus*	Goldfish	Lindane (gamma-HCH)	96	MORT	4	131	131	152
LC_{50}	Fish	*Carassius auratus*	Goldfish	Malathion	96	MORT	6	790	6,925	10,700
LC_{50}	Fish	*Carassius auratus*	Goldfish	Methidathion	96	MORT	1	—	6.8	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Methyl parathion	96	MORT	4	9,000	9,000	12,000
LC_{50}	Fish	*Carassius auratus*	Goldfish	Molinate	96	MORT	1	—	30,300	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Oxamyl	96	MORT	1	—	27,500	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Prometryne (prometryn)	96	MORT	1	—	4,000	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Pronamide (propyzamide)	96	MORT	1	—	350,000	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Propoxur	96	MORT	1	—	50,000	—
LC_{50}	Fish	*Carassius auratus*	Goldfish	Trifluralin	96	MORT	2	145	145	145
LC_{50}	Fish	*Carassius carassius*	Crucian carp	Profenofos	96	MORT	1	—	90	—
LC_{50}	Fish	*Carassius carassius*	Crucian carp	Terbuthylazine	96	MORT	1	—	66,000	—
LC_{50}	Fish	*Centrarchidae*	Sunfish family	Simazine	96	MORT	5	14,300	56,000	695,000
LC_{50}	Fish	*Channa orientalis*	smooth-breasted snakefish	Temephos	96	MORT	4	216,000	217,125	221,000
LC_{50}	Fish	*Channa punctata*	Snake-head catfish	alpha-Endosulfan	96	MORT	1	—	0.16	—
LC_{50}	Fish	*Channa punctata*	Snake-head catfish	beta-Endosulfan	96	MORT	1	—	6.6	—
LC_{50}	Fish	*Channa punctata*	Snake-head catfish	Dichlorvos	96	MORT	1	—	2,300	—
LC_{50}	Fish	*Cirrhinus mrigala*	Carp, hawk fish	Dichlorvos	96	MORT	1	—	290	—
LC_{50}	Fish	*Cirrhinus mrigala*	Carp, hawk fish	Napthol	96	MORT	1	—	1,460	—
LC_{50}	Fish	*Cirrhinus mrigala*	Carp, hawk fish	Temephos	96	MORT	1	—	15,300	—
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	2,4-D	96	MORT	1	—	60,000	—
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	Bensulfuron-methyl	96	MORT	1	—	100,000	—
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	Carbaryl	96	MORT	3	20,000	46,850	107,660
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	Diazinon	96	MORT	1	—	4,791.6	—

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	Dichlorvos	96	MORT	1	—	8,880	—
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	Dieldrin	96	MORT	1	—	1	—
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	Lindane (gamma-HCH)	96	MORT	2	1.1	8,000.55	16,000
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	Malathion	96	MORT	2	47	6,023.5	12,000
LC_{50}	Fish	*Coregonus lavaretus*	Whitefish	Atrazine	96	MORT	2	11,200	18,750	26,300
LC_{50}	Fish	*Ctenopharyngodon idella*	Grass carp	Dichlobenil	96	MORT	1	—	9,400	—
LC_{50}	Fish	*Ctenopharyngodon idella*	Grass carp	Diuron	96	MORT	1	—	31,000	—
LC_{50}	Fish	*Cyprinella lutrensis*	Red shiner	Carbaryl	96	MORT	1	—	9,200	—
LC_{50}	Fish	*Cyprinella lutrensis*	Red shiner	Malathion	96	MORT	1	—	25	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Acetochlor	96	MORT	2	2,100	3,000	3,900
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Aldicarb	96	MORT	2	41	105.5	170
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Atrazine	96	MORT	4	2,000	7,850	16,200
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Azinphos-methyl	96	MORT	2	1.86	2.28	2.7
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Bromacil	96	MORT	1	—	162,800	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Butylate	96	MORT	1	—	2,700	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Carbaryl	96	MORT	3	1,200	2,200	2,600
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Carbofuran	96	MORT	1	—	386	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Chlorothalonil	96	MORT	1	—	32	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Chlorpyrifos	96	MORT	4	136	205	270
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Diazinon	96	MORT	3	150	1,470	1,470
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Disulfoton	96	MORT	1	—	1,000	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Diuron	96	MORT	1	—	6,700	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Ethalfluralin	96	MORT	1	—	240	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Ethoprop	96	MORT	2	180	569	958
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Fluometuron	96	MORT	2	48,000	51,650	55,300
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Lindane (gamma-HCH)	96	MORT	2	100	101.95	103.9
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Linuron	96	MORT	1	—	890	—

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Malathion	96	MORT	3	33	51	55
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Methomyl	96	MORT	2	960	1,060	1,160
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Methyl parathion	96	MORT	2	3,400	7,700	12,000
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Metolachlor	96	MORT	2	7,900	8,850	9,800
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Metribuzin	96	MORT	1	—	85,000	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Molinate	96	MORT	1	—	12,000	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Napropamide	96	MORT	1	—	14,000	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Norflurazon	96	MORT	1	—	9,580	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Oxamyl	96	MORT	1	—	2,600	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Pendimethalin	96	MORT	2	710	1,205	1,700
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Permethrin	96	MORT	2	7.8	47.9	88
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Phorate	96	MORT	3	1.3	4	8.2
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Prometon	96	MORT	1	—	47,300	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Propanil	96	MORT	1	—	4,600	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Propargite	96	MORT	1	—	60	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Terbacil	96	MORT	1	—	108,000	—
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Terbufos	96	MORT	9	1.6	4	4.6
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Thiobencarb	96	MORT	5	658	1,370	1,400
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	Trifluralin	96	MORT	1	—	160	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	2,4,5-T	96	MORT	2	5,300	23,200	41,100
LC_{50}	Fish	*Cyprinus carpio*	Carp	2,4-D	96	MORT	9	5,100	21,450	270,000
LC_{50}	Fish	*Cyprinus carpio*	Carp	Alachlor	96	MORT	1	—	4,600	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Atrazine	96	MORT	1	—	18,800	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Azinphos-methyl	96	MORT	3	695	695	695
LC_{50}	Fish	*Cyprinus carpio*	Carp	Bentazon	96	MORT	1	—	978,000	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Carbaryl	96	MORT	11	1,190	3,300	5,280
LC_{50}	Fish	*Cyprinus carpio*	Carp	Carbofuran	96	MORT	7	160	1,290	3,000
LC_{50}	Fish	*Cyprinus carpio*	Common, mirror, colored, carp	Cypermethrin	96	MORT	6	0.8	1.6	11

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Cyprinus carpio*	Carp	Diazinon	96	MORT	2	3,430	4,200	4,970
LC_{50}	Fish	*Cyprinus carpio*	Carp	Dichlobenil	96	MORT	1	—	10,900	—
LC_{50}	Fish	*Cyprinus carpio*	Common, mirror, colored, carp	Dichlorvos	96	MORT	1	—	340	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Dieldrin	96	MORT	1	—	600	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Diuron	96	MORT	1	—	2,900	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Ethoprop	96	MORT	1	—	640	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Ethyl parathion (parathion)	96	MORT	1	—	850	—
LC_{50}	Fish	*Cyprinus carpio*	Common, mirror, colored, carp	Fenthion	96	MORT	2	1,160	1,845	2,530
LC_{50}	Fish	*Cyprinus carpio*	Carp	Fonofos	96	MORT	1	—	88	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Lindane (gamma-HCH)	96	MORT	6	90	145	13,000
LC_{50}	Fish	*Cyprinus carpio*	Carp	Malathion	96	MORT	14	2	6,590	13,800
LC_{50}	Fish	*Cyprinus carpio*	Carp	MCPA	96	MORT	1	—	59,000	—
LC_{50}	Fish	*Cyprinus carpio*	Common, mirror, colored, carp	Metalaxyl	96	MORT	1	—	100,000	—
LC_{50}	Fish	*Cyprinus carpio*	Carp	Methyl parathion	96	MORT	4	7,130	7,130	14,800
LC_{50}	Fish	*Cyprinus carpio*	Carp	Molinate	96	MORT	2	29,000	35,900	42,800
LC50	Fish	*Cyprinus carpio*	Carp	Permethrin	96	MORT	1	—	15	—
LC_{50}	Fish	*Cyprinus carpio*	Common, mirror, colored, carp	Phosmet	96	MORT	1	—	23,000	—
LC_{50}	Fish	*Cyprinus carpio*	Common, mirror, colored, carp	Propiconazole	96	MORT	5	5,700	21,000	46,000
LC_{50}	Fish	*Cyprinus carpio*	Carp	Propoxur	96	MORT	5	3,300	7,340	10,100
LC_{50}	Fish	*Cyprinus carpio*	Carp	Thiobencarb	96	MORT	2	110	765	1,420
LC_{50}	Fish	*Cyprinus carpio*	Carp	Trifluralin	96	MORT	1	—	660	—
LC_{50}	Fish	*Danio rerio*	Zebra danio	3,4-Dichloroaniline	96	MORT	3	53	8,500	9,800
LC_{50}	Fish	*Danio rerio*	Zebra danio	Prometryne (prometryn)	96	MORT	2	2,300	2,650	3,000
LC_{50}	Fish	*Esox lucius*	Northern pike	Azinphos-methyl	96	MORT	2	0.36	0.36	0.36
LC_{50}	Fish	*Esox lucius*	Northern pike	Phorate	96	MORT	2	110	110	110
LC_{50}	Fish	*Fundulus diaphanus*	Banded killifish	2,4,5-T	96	MORT	1	—	17,400	—
LC_{50}	Fish	*Fundulus diaphanus*	Banded killifish	2,4-D	96	MORT	1	—	26,700	—
LC_{50}	Fish	*Fundulus diaphanus*	Banded killifish	Malathion	96	MORT	1	—	240	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Fundulus diaphanus*	Banded killifish	Methyl parathion	96	MORT	1	—	15,200	—
LC_{50}	Fish	*Fundulus heteroclitus*	Mummichog	Azinphos-methyl	96	MORT	6	22.74	41.22	85.1
LC_{50}	Fish	*Fundulus heteroclitus*	Mummichog	Chlorpyrifos	96	MORT	1	—	4.65	—
LC_{50}	Fish	*Fundulus heteroclitus*	Mummichog	Dieldrin	96	MORT	3	5	5	16
LC_{50}	Fish	*Fundulus heteroclitus*	Mummichog	Lindane (gamma-HCH)	96	MORT	2	20	40	60
LC_{50}	Fish	*Fundulus heteroclitus*	Mummichog	Malathion	96	MORT	5	22.51	70	400
LC_{50}	Fish	*Fundulus heteroclitus*	Mummichog	Methyl parathion	96	MORT	2	8,000	33,000	58,000
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, silvex)	96	MORT	1	—	350	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Azinphos-methyl	96	MORT	1	—	78	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Bentazon	96	MORT	1	—	3,874,000	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Butylate	96	MORT	1	—	8,500	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Carbaryl	96	MORT	3	1,400	31,800	204,000
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Carbofuran	96	MORT	1	—	300	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Chlorpyrifos	96	MORT	2	280	425	570
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Cycloate	96	MORT	2	10,000	10,000	10,000
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Dicamba	96	MORT	1	—	465,000	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Dichlorvos	96	MORT	1	—	5,270	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Dieldrin	96	MORT	3	1.5	3.7	31
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	EPTC	96	MORT	1	—	16,370	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Ethion	96	MORT	1	—	206	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Ethyl parathion (parathion)	96	MORT	2	320	1,180.5	2,041

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Lindane (gamma-HCH)	96	MORT	4	130	440.55	1,350
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Malathion	96	MORT	2	200	430	660
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Methyl parathion	96	MORT	1	—	5	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Molinate	96	MORT	1	—	16,400	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Pebulate	96	MORT	1	—	10,000	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Picloram	96	MORT	1	—	120,000	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Temephos	96	MORT	1	—	7,000	—
LC_{50}	Fish	*Gambusia affinis*	Western mosquito fish	Trifluralin	96	MORT	1	—	12,000	—
LC_{50}	Fish	*Gambusia sp*	Mosquitofish	Dichlorvos	96	MORT	1	—	5,270	—
LC_{50}	Fish	*Gambusia sp*	Western mosquito fish	Ethyl parathion (parathion)	96	MORT	1	—	320	—
LC_{50}	Fish	*Gasterosteus aculeatus*	Threespine stickleback	Azinphos-methyl	96	MORT	2	4.8	8.45	12.1
LC_{50}	Fish	*Gasterosteus aculeatus*	Threespine stickleback	Carbaryl	96	MORT	2	399	2,194.5	3,990
LC_{50}	Fish	*Gasterosteus aculeatus*	Threespine stickleback	Chlorothalonil	96	MORT	1	—	69	—
LC_{50}	Fish	*Gasterosteus aculeatus*	Threespine stickleback	Chlorpyrifos	96	MORT	1	—	8.54	—
LC_{50}	Fish	*Gasterosteus aculeatus*	Threespine stickleback	Dieldrin	96	MORT	2	13.1	14.2	15.3
LC_{50}	Fish	*Gasterosteus aculeatus*	Threespine stickleback	Lindane (gamma-HCH)	96	MORT	2	44	47	50
LC_{50}	Fish	*Gasterosteus aculeatus*	Threespine stickleback	Malathion	96	MORT	2	76.9	85.45	94
LC_{50}	Fish	*Gila elegans*	Bonytail	Carbaryl	96	MORT	3	650	2,020	3,310
LC_{50}	Fish	*Gila elegans*	Bonytail	Malathion	96	MORT	1	—	1,530	—
LC_{50}	Fish	*Heteropneustes fossilis*	Indian catfish	Cypermethrin	96	MORT	1	—	9.1	—
LC_{50}	Fish	*Heteropneustes fossilis*	Indian catfish	Dichlorvos	96	MORT	1	—	6,610	—
LC_{50}	Fish	*Heteropneustes fossilis*	Indian catfish	Temephos	96	MORT	1	—	206,600	—
LC_{50}	Fish	*Ictalurus*	Bullhead, catfish	Terbuthylazine	96	MORT	1	—	7,000	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, silvex)	96	MORT	1	—	19,400	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	2,4-D	96	MORT	1	—	7,000	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Alachlor	96	MORT	1	—	6,500	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Azinphos-methyl	96	MORT	4	3,220	3,290	3,290
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Bensulfuron-methyl	96	MORT	1	—	150,000	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Carbaryl	96	MORT	8	140	10,095	15,800
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Carbofuran	96	MORT	2	248	248	248
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Chlorothalonil	96	MORT	3	43	52	430
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Chlorpyrifos	96	MORT	3	280	280	806
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Cyanazine	96	MORT	6	10,400	11,300	17,400
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Dicrotophos	96	MORT	2	7,660	7,680	7,700
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Dieldrin	96	MORT	2	4.5	11.75	19
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Dinoseb	96	MORT	6	28	53.5	118
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Disulfoton	96	MORT	2	4,700	4,700	4,700
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Ethion	96	MORT	1	—	7,600	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Ethyl parathion (parathion)	96	MORT	4	2,650	2,975	3,300
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Fenthion	96	MORT	3	650	1,600	1,680
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Fipronil	96	MORT	1	—	560	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Flumetralin	96	MORT	1	—	21.9	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Fluometuron	96	MORT	4	600	6,070	22,500
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Imazethapyr	96	MORT	2	240,000	280,000	320,000
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Iprodione	96	MORT	2	3,060	3,080	3,100
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Isofenphos	96	MORT	1	—	2,100	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Lindane (gamma-HCH)	96	MORT	4	44	44	450
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Linuron	96	MORT	2	1,800	2,350	2,900

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Malathion	96	MORT	5	7,620	8,970	52,200
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Methomyl	96	MORT	9	300	320	1,800
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Methyl parathion	96	MORT	3	5,240	5,240	5,710
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Metolachlor	96	MORT	1	—	4,900	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Metribuzin	96	MORT	1	—	3,400	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Molinate	96	MORT	1	—	34,000	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Oxamyl	96	MORT	2	13,500	15,500	17,500
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Oxyfluorfen	96	MORT	1	—	400	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Pendimethalin	96	MORT	2	418	1,159	1,900
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Permethrin	96	MORT	2	5.4	6.3	7.2
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Phorate	96	MORT	3	2.2	280	280
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Phosmet	96	MORT	4	7,500	9,050	11,000
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Picloram	96	MORT	6	1,400	14,750	74,800
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Profenofos	96	MORT	4	13.5	19.5	2,390
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Propachlor	96	MORT	2	230	255	280
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Propham	96	MORT	1	—	86,500	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Propiconazole	96	MORT	3	4,870	4,870	12,000
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Propoxur	96	MORT	1	—	1,300	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Simazine	96	MORT	1	—	85,000	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Sulfotepp (Dithion)	96	MORT	1	—	1,000	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Sulprofos	96	MORT	1	—	2,900	—
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Temephos	96	MORT	7	3,230	3,990	10,000
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Terbufos	96	MORT	2	9.6	904.8	1,800
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Thiobencarb	96	MORT	4	1,800	2,285	2,300
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Tribufos (tribuphos)	96	MORT	4	350	3,570	18,780
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	Trifluralin	96	MORT	3	210	417	2,200

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Jordanella floridae*	Flagfish	Diazinon	96	MORT	3	1,500	1,600	1,800
LC_{50}	Fish	*Jordanella floridae*	Flagfish	Malathion	96	MORT	1	—	349	—
LC_{50}	Fish	*Jordanella floridae*	Flagfish	Picloram	96	MORT	1	—	26,100	—
LC_{50}	Fish	*Labeo rohita*	Rohu	alpha-Endosulfan	96	MORT	2	0.33	0.665	1
LC_{50}	Fish	*Labeo rohita*	Rohu	beta-Endosulfan	96	MORT	1	—	7.1	—
LC_{50}	Fish	*Labeo rohita*	Rohu	Cypermethrin	96	MORT	2	0.23	2.735	5.24
LC_{50}	Fish	*Labeo rohita*	Rohu	Napthol	96	MORT	2	2,600	2,865	3,130
LC_{50}	Fish	*Lagodon rhomboides*	Pinfish	Lindane (gamma-HCH)	96	MORT	1	—	30.6	—
LC_{50}	Fish	*Leiostomus xanthurus*	Spot	Atrazine	96	MORT	1	—	8,500	—
LC_{50}	Fish	*Lepidocephalichthys thermalis*	Loach	Cypermethrin	96	MORT	1	—	570	—
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Azinphos-methyl	96	MORT	2	52	52	52
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Carbaryl	96	MORT	2	9,460	10,330	11,200
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Dichlobenil	96	MORT	2	5,700	5,700	5,700
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Dieldrin	96	MORT	3	6.2	8.5	11
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Ethyl parathion (parathion)	96	MORT	3	395	930	1,700
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Fenthion	96	MORT	3	1,880	2,340	2,830
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Lindane (gamma-HCH)	96	MORT	2	70	76.5	83
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Malathion	96	MORT	3	175	600	1,460
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	Methyl parathion	96	MORT	2	6,860	6,860	6,860
LC_{50}	Fish	*Lepomis gibbosus*	Pumpkinseed	2,4,5-T	96	MORT	1	—	20,000	—
LC_{50}	Fish	*Lepomis gibbosus*	Pumpkinseed	2,4-D	96	MORT	1	—	94,600	—
LC_{50}	Fish	*Lepomis gibbosus*	Pumpkinseed	Malathion	96	MORT	1	—	480	—
LC_{50}	Fish	*Lepomis gibbosus*	Pumpkinseed	Methyl parathion	96	MORT	1	—	3,600	—
LC_{50}	Fish	*Lepomis gibbosus*	Pumpkinseed	Simazine	96	MORT	1	—	27,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, silvex)	96	MORT	4	9,600	12,200	86,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	2,4-D	96	MORT	4	7,400	221,500	263,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	2,4-DB	96	MORT	3	7,500	7,500	16,800
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	4,6-Dinitro-2-methylphenol (DNOC)	96	MORT	2	230	295	360
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	4-Chloro-2-methylphenol	96	MORT	1	—	2,300	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Acetochlor	96	MORT	3	1,300	1,500	1,600
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Alachlor	96	MORT	10	2,800	4,950	12,400
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Aldicarb	96	MORT	4	50	51	450
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Aldicarb sulfone	96	MORT	1	—	53,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Atrazine	96	MORT	7	6,700	42,000	69,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Azinphos-methyl	96	MORT	17	4.1	7.4	120
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Bendiocarb	96	MORT	5	470	1,350	1,650

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Benfluralin	96	MORT	3	65	420	600
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Bensulfuron-methyl	96	MORT	2	63,000	106,500	150,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Bifenthrin	96	MORT	1	—	0.35	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Bromacil	96	MORT	1	—	127,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Bromoxynil	96	MORT	2	4,000	13,500	23,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Butylate	96	MORT	6	210	7,050	202,500
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Carbaryl	96	MORT	26	760	6,760	290,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Carbofuran	96	MORT	8	80	240	3,100
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Chlorimuron-ethyl	96	MORT	1	—	2,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Chlorothalonil	96	MORT	5	26.3	62	386
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Chlorpyrifos	96	MORT	10	1.3	6.52	108
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Cyanazine	96	MORT	2	22,500	22,500	22,500
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Cycloate	96	MORT	3	4,600	4,600	6,800
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Cyfluthrin	96	MORT	2	0.87	1.185	1.5
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Cyhalothrin	96	MORT	3	0.21	0.46	4.9
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Cypermethrin	96	MORT	4	1.78	3.945	36,300
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Diazinon	96	MORT	21	22	170	530
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Dicamba	96	MORT	2	135,300	157,650	180,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Dichlobenil	96	MORT	7	6,720	10,000	14,700
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Dichlorprop (2,4-DP)	96	MORT	3	830	2,400	2,400
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Dichlorvos	96	MORT	7	270	800	180,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Dicrotophos	96	MORT	2	2,800	13,500	24,200
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Dieldrin	96	MORT	20	2.8	12.5	79
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Diphenamid	96	MORT	3	32,000	65,000	75,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Disulfoton	96	MORT	11	8.2	77	1,300
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Diuron	96	MORT	8	2,800	6,750	84,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	EPTC	96	MORT	3	22,400	24,800	26,700
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Ethalfluralin	96	MORT	2	32	67	102
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Ethion	96	MORT	4	73	170	255
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Ethoprop	96	MORT	3	300	2,070	8,900
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Ethyl parathion (parathion)	96	MORT	12	18	210.5	710
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Fenamiphos	96	MORT	7	4.5	151	2,653
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Fenthion	96	MORT	4	1,380	2,400	3,400
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Fipronil	96	MORT	2	25	54	83
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Flumetralin	96	MORT	3	3.2	17.9	23
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Flumetsulam	96	MORT	1	—	300,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Fluometuron	96	MORT	5	13,500	48,000	96,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Fonofos	96	MORT	9	5.1	6.8	320
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Hexazinone	96	MORT	3	100,000	238,000	420,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Imazethapyr	96	MORT	2	420,000	421,500	423,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Iprodione	96	MORT	3	3,700	6,300	7,800
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Isofenphos	96	MORT	4	1,300	1,800	15,000

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Lindane (gamma-HCH)	96	MORT	22	25	66.5	810
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Linuron	96	MORT	3	9,200	9,600	16,200
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Malathion	96	MORT	13	20	103	1,200
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	MCPA	96	MORT	1	—	97,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	MCPB	96	MORT	1	—	3,300	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Metalaxyl	96	MORT	3	27,000	139,000	150,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Methidathion	96	MORT	4	2.2	9	32.5
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Methiocarb	96	MORT	5	110	210	754
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Methomyl	96	MORT	18	370	850	7,700
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Methyl parathion	96	MORT	9	1,000	2,434	13,300
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Metolachlor	96	MORT	1	—	10,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Metribuzin	96	MORT	3	75,960	92,000	131,300
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Metsulfuron methyl	96	MORT	2	150,000	150,000	150,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Molinate	96	MORT	7	320	19,670	29,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Myclobutanil	96	MORT	1	—	2,400	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Napropamide	96	MORT	2	12,000	12,650	13,300
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Norflurazon	96	MORT	1	—	16,300	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Oryzalin	96	MORT	1	—	2,880	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Oxamyl	96	MORT	4	5,600	6,415	10,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Oxyfluorfen	96	MORT	1	—	200	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	*p,p′*-DDE	96	MORT	1	—	240	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Pebulate	96	MORT	1	—	7,900	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Pendimethalin	96	MORT	4	199	980	90,400
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Permethrin	96	MORT	14	0.79	9.9	33.4
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Phorate	96	MORT	6	1	3.35	12
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Phosmet	96	MORT	57	22	360	10,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Picloram	96	MORT	10	14,500	28,450	86,100
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Profenofos	96	MORT	5	13.5	19	300
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Prometon	96	MORT	3	15,500	40,000	41,500
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Prometryne (prometryn)	96	MORT	2	10,000	10,000	10,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Propanil	96	MORT	2	5,400	9,700	14,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Propargite	96	MORT	2	31	99	167
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Propetamphos	96	MORT	3	190	280	1,100
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Propham	96	MORT	2	29,000	29,000	29,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Propiconazole	96	MORT	5	1,300	5,500	9,800
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Propoxur	96	MORT	7	4,800	6,200	180,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Siduron	96	MORT	2	130	7,565	15,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Simazine	96	MORT	6	16,000	95,000	118,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Sulfometuron-methyl	96	MORT	2	12,500	81,250	150,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Sulfotepp (Dithion)	96	MORT	2	1.6	180.8	360
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Sulprofos	96	MORT	2	1,000	7,500	14,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Tebupirimphos (tebupirimfos)	96	MORT	2	7.7	48.35	89

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Tebuthiuron	96	MORT	1	—	106,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Tefluthrin	96	MORT	2	0.13	4.465	8.8
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Temephos	96	MORT	8	1,140	6,540	43,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Terbacil	96	MORT	2	102,900	107,450	112,000
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Terbufos	96	MORT	7	0.77	1.7	13.3
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Terbuthylazine	96	MORT	1	—	7,500	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Thiobencarb	96	MORT	6	560	1,700	2,500
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Triallate	96	MORT	3	1,300	1,330	2,400
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Tribenuron-methyl	96	MORT	1	—	1,000,000	—
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Tribufos (tribuphos)	96	MORT	12	245	615	1,300
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	Trifluralin	96	MORT	7	8.4	58	190
LC_{50}	Fish	*Lepomis microlophus*	Redear sunfish	Azinphos-methyl	96	MORT	1	—	52	—
LC_{50}	Fish	*Lepomis microlophus*	Redear sunfish	Carbaryl	96	MORT	1	—	11,200	—
LC_{50}	Fish	*Lepomis microlophus*	Redear sunfish	Fenthion	96	MORT	1	—	1,880	—
LC_{50}	Fish	*Lepomis microlophus*	Redear sunfish	Lindane (gamma-HCH)	96	MORT	1	—	83	—
LC_{50}	Fish	*Lepomis microlophus*	Redear sunfish	Malathion	96	MORT	3	62	62	170
LC_{50}	Fish	*Lepomis microlophus*	Redear sunfish	Methyl parathion	96	MORT	1	—	5,170	—
LC_{50}	Fish	*Lepomis microlophus*	Redear sunfish	Simazine	96	MORT	1	—	54,000	—
LC_{50}	Fish	*Leuciscus idus*	Ide	Azinphos-methyl	96	MORT	1	—	120	—
LC_{50}	Fish	*Leuciscus idus*	Ide	Diazinon	96	MORT	2	150	150	150
LC_{50}	Fish	*Leuciscus idus*	Ide, silver or golden orfe	Propetamphos	96	MORT	1	—	15,000	—
LC_{50}	Fish	*Menidia beryllina*	Inland silverside	2,4-D	96	MORT	1	—	175,000	—
LC_{50}	Fish	*Menidia beryllina*	Inland silverside	Azinphos-methyl	96	MORT	1	—	22.8	—
LC_{50}	Fish	*Menidia beryllina*	Inland silverside	Chlorpyrifos	96	MORT	3	4.2	4.2	10.2
LC_{50}	Fish	*Menidia beryllina*	Inland silverside	Malathion	96	MORT	2	0.19	0.22	0.25
LC_{50}	Fish	*Menidia beryllina*	Inland silverside	Terbufos	96	MORT	1	—	4.7	—
LC_{50}	Fish	*Micropterus dolomieui*	Smallmouth bass	2,4-D	96	MORT	1	—	3,100	—
LC_{50}	Fish	*Micropterus dolomieui*	Smallmouth bass	Phosmet	96	MORT	2	150	150	150
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Azinphos-methyl	96	MORT	3	4.8	4.8	5
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Carbaryl	96	MORT	3	6,400	6,400	6,400
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Dichlobenil	96	MORT	1	—	12,500	—
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Dieldrin	96	MORT	1	—	3.5	—
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Disulfoton	96	MORT	2	60	60	60
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Ethion	96	MORT	1	—	173	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Ethyl parathion (parathion)	96	MORT	3	620	620	760
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Fenthion	96	MORT	3	1,220	1,540	2,100
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Lindane (gamma-HCH)	96	MORT	3	32	32	32
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Malathion	96	MORT	4	250	267.5	285
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Methomyl	96	MORT	4	760	1,005	1,250
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Methyl parathion	96	MORT	3	5,220	5,220	5,220
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Phorate	96	MORT	2	5	5	5
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Phosmet	96	MORT	2	160	160	160
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Simazine	96	MORT	1	—	46,000	—
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Temephos	96	MORT	4	1,440	2,635	4,140
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	Trifluralin	96	MORT	2	75	75	75
LC_{50}	Fish	*Morone americana*	White perch	2,4,5-T	96	MORT	1	—	16,400	—
LC_{50}	Fish	*Morone americana*	White perch	2,4-D	96	MORT	1	—	40,000	—
LC_{50}	Fish	*Morone americana*	White perch	Malathion	96	MORT	1	—	1,100	—
LC_{50}	Fish	*Morone americana*	White perch	Methyl parathion	96	MORT	1	—	14,000	—
LC_{50}	Fish	*Morone saxatilis*	Striped bass	2,4,5-T	96	MORT	1	—	14,600	—
LC_{50}	Fish	*Morone saxatilis*	Striped bass	2,4-D	96	MORT	1	—	70,100	—
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Carbaryl	96	MORT	3	760	1,000	2,300
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Carbofuran	96	MORT	6	130	170	370
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Chlorpyrifos	96	MORT	1	—	0.58	—
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Dichlobenil	96	MORT	1	—	6,200,000	—
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Dieldrin	96	MORT	3	1	19.7	500
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Diuron	96	MORT	3	500	3,100	6,000
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Ethyl parathion (parathion)	96	MORT	3	17.8	1,000	2,000
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Fenthion	96	MORT	1	—	453	—
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Lindane (gamma-HCH)	96	MORT	2	7.3	203.65	400
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Malathion	96	MORT	11	12	39	240
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Methyl parathion	96	MORT	4	790	4,750	14,000
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Molinate	96	MORT	4	8,100	9,400	12,000
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Simazine	96	MORT	2	250	411,125	822,000
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Temephos	96	MORT	1	—	1,000	—
LC_{50}	Fish	*Morone saxatilis*	Striped bass	Thiobencarb	96	MORT	17	430	760	1,000
LC_{50}	Fish	*Mugil cephalus*	Striped mullet	Chlorpyrifos	96	MORT	1	—	5.4	—
LC_{50}	Fish	*Mugil cephalus*	Striped mullet	Dieldrin	96	MORT	1	—	23	—
LC_{50}	Fish	*Mugil cephalus*	Striped mullet	Lindane (gamma-HCH)	96	MORT	1	—	66	—

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Mugil cephalus*	Striped mullet	Malathion	96	MORT	1	—	550	—
LC_{50}	Fish	*Mugil cephalus*	Striped mullet	Methyl parathion	96	MORT	1	—	5,200	—
LC_{50}	Fish	*Mugil cephalus*	Striped mullet	Trifluralin	96	MORT	1	—	32	—
LC_{50}	Fish	*Mystus vittatus*	Striped catfish	Dichlorvos	96	MORT	2	2.5	226.25	450
LC_{50}	Fish	*Notropis atherinoides*	Emerald shiner	Atrazine	96	MORT	1	—	15,600	—
LC_{50}	Fish	*Notropis atherinoides*	Emerald shiner	Propanil	96	MORT	1	—	7,500	—
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	2,4-D	96	MORT	2	24,500	44,250	64,000
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Carbaryl	96	MORT	9	970	3,950	7,100
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Chlorpyrifos	96	MORT	2	5.4	11.7	18
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Diazinon	96	MORT	4	1,700	2,230	3,850
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Dichlorvos	96	MORT	3	170	213	304
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Dieldrin	96	MORT	3	6	6.4	12
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Dinoseb	96	MORT	13	41	87	1,350
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Diuron	96	MORT	3	710	1,400	1,400
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	EPTC	96	MORT	3	12,500	17,000	23,300
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Ethion	96	MORT	2	720	810	900
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Ethyl parathion (parathion)	96	MORT	2	1,560	1,560	1,560
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Fenthion	96	MORT	5	1,020	1,320	1,580
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Malathion	96	MORT	4	150	240.5	1,740
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Methomyl	96	MORT	2	4,050	5,425	6,800
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Methyl parathion	96	MORT	2	1,850	1,850	1,850
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Phorate	96	MORT	2	6	36	66
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Picloram	96	MORT	13	1,475	4,700	8,600
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	Temephos	96	MORT	3	1,000	1,270	1,270
LC_{50}	Fish	*Oncorhynchus gorbuscha*	Pink salmon	Dichlorprop (2,4-DP)	96	MORT	2	600	700	800
LC_{50}	Fish	*Oncorhynchus gorbuscha*	Pink salmon	Hexazinone	96	MORT	3	236,000	676,000	1,408,000
LC_{50}	Fish	*Oncorhynchus gorbuscha*	Pink salmon	Triclopyr	96	MORT	2	500	2,900	5,300
LC_{50}	Fish	*Oncorhynchus keta*	Chum salmon	Dichlorprop (2,4-DP)	96	MORT	1	—	1,100	—
LC_{50}	Fish	*Oncorhynchus keta*	Chum salmon	Hexazinone	96	MORT	2	285,000	609,500	934,000
LC_{50}	Fish	*Oncorhynchus keta*	Chum salmon	Triclopyr	96	MORT	2	300	3,900	7,500
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, silvex)	96	MORT	1	—	600	—
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Azinphos-methyl	96	MORT	4	4.2	6.1	17
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Carbaryl	96	MORT	5	764	1,300	4,340
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Carbofuran	96	MORT	2	530	530	530

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Dichlorprop (2,4-DP)	96	MORT	3	1,500	1,800	2,200
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Dieldrin	96	MORT	1	—	10.8	—
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon, silver salmon	Fenthion	96	MORT	1	—	1,320	—
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon, silver salmon	Hexazinone	96	MORT	2	246,000	584,500	923,000
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Lindane (gamma-HCH)	96	MORT	4	23	32	50
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Malathion	96	MORT	4	101	170	265
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Methyl parathion	96	MORT	3	5,300	5,300	5,300
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Permethrin	96	MORT	1	—	17	—
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon, silver salmon	Temephos	96	MORT	5	350	1,250	1,640
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	Triclopyr	96	MORT	6	260	1,150	9,600
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, silvex)	96	MORT	2	14,800	16,000	17,200
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	2,4,5-T	96	MORT	2	150	4,425	8,700
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	2,4-D	96	MORT	8	1,400	27,300	358,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	2,4-DB	96	MORT	4	2,000	3,700	14,300
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	3,4-Dichloroaniline	96	MORT	1	—	1,940	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	4,6-Dinitro-2-methylphenol (DNOC)	96	MORT	1	—	66	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Acetochlor	96	MORT	3	380	420	1,200
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Alachlor	96	MORT	10	240	2,100	4,200
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Aldicarb	96	MORT	3	560	560	560
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Aldicarb sulfone	96	MORT	1	—	42,000	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Atrazine	96	MORT	6	4,500	11,750	24,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Azinphos-methyl	96	MORT	10	3.2	6.95	28

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Bendiocarb	96	MORT	3	870	1,200	1,550
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Benfluralin	96	MORT	2	81	184.5	288
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Bensulfuron-methyl	96	MORT	2	150,000	210,000	270,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Bifenthrin	96	MORT	1	—	0.15	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Bromacil	96	MORT	2	36,000	50,500	65,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Bromoxynil	96	MORT	2	2,090	10,045	18,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Butylate	96	MORT	6	2,100	4,700	202,500
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Carbaryl	96	MORT	25	800	1,470	5,400
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Carbofuran	96	MORT	4	362	380	420
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Chlorimuron-ethyl	96	MORT	1	—	8,400	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Chlorothalonil	96	MORT	14	7.6	17.55	250
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Chlorpyrifos	96	MORT	9	7.1	8	51
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Cyanazine	96	MORT	2	9,000	9,000	9,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Cycloate	96	MORT	6	4,500	5,800	7,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Cyfluthrin	96	MORT	2	0.3	0.49	0.68
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Cyhalothrin	96	MORT	3	0.24	0.54	11.2
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Cypermethrin	96	MORT	9	0.5	5	13,300
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	DCPA (Dacthal)	96	MORT	2	6,600	18,300	30,000

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Diazinon	96	MORT	11	90	400	3,200
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Dicamba	96	MORT	5	28,000	130,000	153,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Dichlobenil	96	MORT	3	4,930	6,300	18,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Dichlorprop (2,4-DP)	96	MORT	7	500	1,800	6,100
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Dichlorvos	96	MORT	2	100	425	750
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Dicrotophos	96	MORT	1	—	6,300	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Dieldrin	96	MORT	10	0.62	2.7	10,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Dimethomorph	96	MORT	1	—	6,200	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Diphenamid	96	MORT	2	97,000	97,000	97,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Disulfoton	96	MORT	6	1,850	3,010	13,900
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Diuron	96	MORT	6	1,950	16,000	23,800
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	EPTC	96	MORT	3	19,960	20,720	21,840
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Ethalfluralin	96	MORT	2	37	86.5	136
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Ethion	96	MORT	3	185	193	500
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Ethoprop	96	MORT	5	1,100	7,800	13,800
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Ethyl parathion (parathion)	96	MORT	6	750	1,415	10,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Fenamiphos	96	MORT	3	68	72.1	563
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Fenthion	96	MORT	6	550	835	930
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Fenuron	96	MORT	1	—	204,000	—

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Fipronil	96	MORT	2	39	142.5	246
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Flumetralin	96	MORT	2	3.2	13.6	24
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Flumetsulam	96	MORT	1	—	300,000	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Fluometuron	96	MORT	10	2,960	25,200	47,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Fonofos	96	MORT	5	19	20	2,800
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Hexazinone	96	MORT	7	100,000	257,000	1,964,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Imazethapyr	96	MORT	2	280,000	312,000	344,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Iprodione	96	MORT	1	—	4,200	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Isofenphos	96	MORT	4	1,800	6,000	20,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Lindane (gamma-HCH)	96	MORT	11	18	30	120
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Linuron	96	MORT	2	3,000	9,700	16,400
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Malathion	96	MORT	17	2.8	122	234
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	MCPA	96	MORT	2	91,000	91,000	91,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Metalaxyl	96	MORT	3	18,400	130,000	132,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Methidathion	96	MORT	5	10	14	80
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Methiocarb	96	MORT	7	0.75	800	4,700
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Methomyl	96	MORT	19	860	1,600	32,000

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Methyl parathion	96	MORT	8	2,200	3,700	161,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Metolachlor	96	MORT	1	—	3,900	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Metribuzin	96	MORT	5	42,000	76,770	147,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Metsulfuron methyl	96	MORT	2	150,000	150,000	150,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Molinate	96	MORT	10	200	11,150	20,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Myclobutanil	96	MORT	1	—	4,200	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Napropamide	96	MORT	3	9,400	10,100	13,400
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Norflurazon	96	MORT	1	—	8,100	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Oryzalin	96	MORT	2	3,260	3,355	3,450
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Oxamyl	96	MORT	4	3,700	4,450	12,400
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Oxyfluorfen	96	MORT	1	—	410	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	*p,p′*-DDE	96	MORT	1	—	32	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Pebulate	96	MORT	1	—	7,400	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Pendimethalin	96	MORT	4	138	760	86,600
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Permethrin	96	MORT	7	2.1	5.6	72
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Phorate	96	MORT	4	13	16	45
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Phosmet	96	MORT	30	105	500	10,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Picloram	96	MORT	11	4,000	19,300	310,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Profenofos	96	MORT	4	21	24.25	43
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Prometon	96	MORT	5	12,000	16,000	20,000

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Prometryne (prometryn)	96	MORT	2	2,900	5,050	7,200
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Pronamide (propyzamide)	96	MORT	1	—	72,000	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Propachlor	96	MORT	2	170	295	420
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Propanil	96	MORT	2	2,300	7,550	12,800
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Propargite	96	MORT	3	118	143	455
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Propetamphos	96	MORT	2	940	1,770	2,600
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Propham	96	MORT	1	—	38,000	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Propiconazole	96	MORT	11	830	5,200	506,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Propoxur	96	MORT	6	3,700	8,200	92,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Siduron	96	MORT	1	—	13,000	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Simazine	96	MORT	5	40,500	56,000	70,500
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Sulfometuron-methyl	96	MORT	2	12,500	80,250	148,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Sulfotepp (Dithion)	96	MORT	2	1.8	500.9	1,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Sulprofos	96	MORT	2	29,700	33,850	38,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Tebupirimphos (tebupirimfos)	96	MORT	1	—	2,220	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Tebuthiuron	96	MORT	1	—	143,000	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Tefluthrin	96	MORT	2	0.06	3.78	7.5

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Temephos	96	MORT	16	158	1,545	50,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Terbacil	96	MORT	3	46,200	54,000	79,000
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Terbufos	96	MORT	7	7.6	10.2	68
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Terbuthylazine	96	MORT	2	3,400	4,000	4,600
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Thiobencarb	96	MORT	6	790	1,175	1,500
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Triallate	96	MORT	2	1,200	1,350	1,500
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Tribenuron-methyl	96	MORT	1	—	1,000,000	—
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout, donaldson trout	Tribufos (tribuphos)	96	MORT	10	310	915	1,800
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Triclopyr	96	MORT	3	1,100	2,200	7,500
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	Trifluralin	96	MORT	8	10	41.5	210
LC_{50}	Fish	*Oncorhynchus nerka*	Sockeye salmon	Dichlorprop (2,4-DP)	96	MORT	1	—	700	—
LC_{50}	Fish	*Oncorhynchus nerka*	Sockeye salmon	Hexazinone	96	MORT	2	317,000	621,000	925,000
LC_{50}	Fish	*Oncorhynchus nerka*	Sockeye salmon	Triclopyr	96	MORT	4	400	1,300	7,500
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	2,4-D	96	MORT	1	—	4,800	—
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Azinphos-methyl	96	MORT	1	—	4.3	—
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Carbaryl	96	MORT	2	2,400	2,400	2,400
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Dichlorprop (2,4-DP)	96	MORT	1	—	600	—
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Dieldrin	96	MORT	1	—	6.1	—
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Hexazinone	96	MORT	2	317,000	706,500	1,096,000
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Lindane (gamma-HCH)	96	MORT	1	—	42	—
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Malathion	96	MORT	2	23	71.5	120
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Molinate	96	MORT	2	13,000	13,000	13,000

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Phosmet	96	MORT	2	150	150	150
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Thiobencarb	96	MORT	1	—	760	—
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	Triclopyr	96	MORT	2	1,100	5,400	9,700
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Atrazine	96	MORT	1	—	50,000	—
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Azinphos-methyl	96	MORT	5	2.4	13	40
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Carbaryl	96	MORT	3	350	745	5,100
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Carbofuran	96	MORT	3	120	147	147
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Fenthion	96	MORT	1	—	1,650	—
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Fluometuron	96	MORT	1	—	70,000	—
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Lindane (gamma-HCH)	96	MORT	4	23	68	68
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Malathion	96	MORT	3	263	263	263
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Methyl parathion	96	MORT	3	3,060	3,060	3,060
LC_{50}	Fish	*Perca flavescens*	Yellow perch	Simazine	96	MORT	1	—	90	—
LC_{50}	Fish	*Perca fluviatilis*	Perch	3,4-Dichloroaniline	96	MORT	1	—	3,100	—
LC_{50}	Fish	*Phoxinus phoxinus*	Minnow	Prometryne (prometryn)	96	MORT	1	—	4,500	—
LC_{50}	Fish	*Pimephales notatus*	Bluntnose minnow	Simazine	96	MORT	1	—	66,000	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, silvex)	96	MORT	2	13,000	43,000	73,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	2,4-D	96	MORT	6	2,400	70,700	320,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	2,4-DB	96	MORT	2	18,000	18,000	18,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	3,4-Dichloroaniline	96	MORT	6	6,990	7,625	9,960
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	4,6-Dinitro-2-methylphenol (DNOC)	96	MORT	5	1,540	1,950	2,720
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Alachlor	96	MORT	3	5,000	5,000	5,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Aldicarb	96	MORT	4	861	1,285	1,370
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Atrazine	96	MORT	2	15,000	15,000	15,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Azinphos-methyl	96	MORT	18	37	202.5	1,900
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Bromacil	96	MORT	1	—	186,000	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Bromoxynil	96	MORT	3	11,500	13,800	13,800
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Carbaryl	96	MORT	15	5,010	9,470	41,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Carbofuran	96	MORT	5	844	872	1,990

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Chlorpyrifos	96	MORT	12	120	155	542
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Cyanazine	96	MORT	6	16,300	17,500	21,300
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Diazinon	96	MORT	11	3,700	6,800	10,300
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Dichlobenil	96	MORT	2	6,000	6,000	6,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Dichlorvos	96	MORT	3	3,090	4,000	11,600
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Dieldrin	96	MORT	9	3.8	24	47
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Dinoseb	96	MORT	12	88	155	700
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Diphenamid	96	MORT	1	—	48,000	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Disulfoton	96	MORT	9	1,870	3,980	4,300
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Diuron	96	MORT	2	14,200	14,200	14,200
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Ethion	96	MORT	2	720	1,560	2,400
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Ethyl parathion (parathion)	96	MORT	14	500	1,505	3,600
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Fenthion	96	MORT	6	1,680	3,035	3,500
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Flumetsulam	96	MORT	1	—	293,000	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Fonofos	96	MORT	1	—	1,090	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Hexazinone	96	MORT	1	—	274,000	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Lindane (gamma-HCH)	96	MORT	8	56	82	130
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Malathion	96	MORT	10	8,650	11,650	25,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	MCPB	96	MORT	1	—	12,500	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Methomyl	96	MORT	10	1,500	1,800	2,800
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Methyl parathion	96	MORT	13	4,460	8,170	9,500
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Metolachlor	96	MORT	2	8,000	8,200	8,400
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Molinate	96	MORT	1	—	27,000	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Napthol	96	MORT	4	3,570	4,180	4,630
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Oxamyl	96	MORT	2	5,480	6,890	8,300
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Paraoxon-ethyl	96	MORT	2	250	290	330

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Permethrin	96	MORT	2	3	4.35	5.7
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Phorate	96	MORT	1	—	250	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Phosmet	96	MORT	3	7,300	7,300	9,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Picloram	96	MORT	2	55,300	68,400	81,500
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Propoxur	96	MORT	3	8,800	25,000	25,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Simazine	96	MORT	3	5,000	6,400	510,000
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Sulfotepp (Dithion)	96	MORT	1	—	178	—
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Temephos	96	MORT	2	34,100	34,100	34,100
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Terbufos	96	MORT	3	13.3	150	390
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	Trifluralin	96	MORT	2	105	105	105
LC_{50}	Fish	*Poecilia reticulata*	Guppy	2,4,5-T	96	MORT	1	—	28,100	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	2,4-D	96	MORT	2	8,356	39,528	70,700
LC_{50}	Fish	*Poecilia reticulata*	Guppy	3,4-Dichloroaniline	96	MORT	2	8,700	8,850	9,000
LC_{50}	Fish	*Poecilia reticulata*	Guppy	alpha-HCH	96	MORT	1	—	1,490	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Atrazine	96	MORT	1	—	4,300	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Azinphos-methyl	96	MORT	2	120	375	630
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Carbaryl	96	MORT	5	3,840	4,700	9,740
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Diazinon	96	MORT	4	800	3,000	3,400
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Dichlorvos	96	MORT	1	—	3,300	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Dieldrin	96	MORT	14	1	6.8	300
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Disulfoton	96	MORT	2	280	280	280
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Ethion	96	MORT	1	—	130	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Ethyl parathion (parathion)	96	MORT	1	—	56	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Fenthion	96	MORT	2	2,120	2,610	3,100
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Fluometuron	96	MORT	1	—	46,000	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Lindane (gamma-HCH)	96	MORT	4	16	95	360
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Malathion	96	MORT	3	840	1,200	3,100
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Metalaxyl	96	MORT	1	—	100,000	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Methyl parathion	96	MORT	2	6,200	8,000	9,800
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Metolachlor	96	MORT	1	—	8,600	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Profenofos	96	MORT	1	—	800	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Prometon	96	MORT	2	12,000	12,000	12,000
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Pronamide (propyzamide)	96	MORT	1	—	150,000	—
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Propoxur	96	MORT	3	1,400	1,740	2,980
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Simazine	96	MORT	2	49,000	49,000	49,000

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Temephos	96	MORT	2	1,900	1,900	1,900
LC_{50}	Fish	*Poecilia reticulata*	Guppy	Terbuthylazine	96	MORT	1	—	1,600	—
LC_{50}	Fish	*Pomoxis nigromaculatus*	Black crappie	Azinphos-methyl	96	MORT	2	3	3	3
LC_{50}	Fish	*Pomoxis nigromaculatus*	Black crappie	Carbaryl	96	MORT	2	2,600	2,600	2,600
LC_{50}	Fish	*Ptychocheilus lucius*	Colorado squawfish	Carbaryl	96	MORT	2	1,310	2,245	3,180
LC_{50}	Fish	*Ptychocheilus lucius*	Colorado squawfish	Malathion	96	MORT	1	—	9,140	—
LC_{50}	Fish	*Pungitius pungitius*	Ninespine stickleback	Chlorpyrifos	96	MORT	1	—	4.7	—
LC_{50}	Fish	*Rutilus rutilus*	Roach	Temephos	96	MORT	1	—	2,400	—
LC_{50}	Fish	*Salmo salar*	Atlantic salmon	Azinphos-methyl	96	MORT	4	1.8	2.1	2.5
LC_{50}	Fish	*Salmo salar*	Atlantic salmon	Carbaryl	96	MORT	2	250	2,375	4,500
LC_{50}	Fish	*Salmo salar*	Atlantic salmon	Methomyl	96	MORT	6	560	1,200	1,400
LC_{50}	Fish	*Salmo salar*	Atlantic salmon	*p,p′*-DDE	96	MORT	1	—	96	—
LC_{50}	Fish	*Salmo salar*	Atlantic salmon	Permethrin	96	MORT	1	—	1.5	—
LC_{50}	Fish	*Salmo salar*	Atlantic salmon	Temephos	96	MORT	22	4,000	13,625	50,000
LC_{50}	Fish	*Salmo trutta*	Brown trout	Azinphos-methyl	96	MORT	3	3.5	4	4.6
LC_{50}	Fish	*Salmo trutta*	Brown trout	Carbaryl	96	MORT	4	700	4,125	6,300
LC_{50}	Fish	*Salmo trutta*	Brown trout	Carbofuran	96	MORT	3	280	560	560
LC_{50}	Fish	*Salmo trutta*	Brown trout	Cypermethrin	96	MORT	1	—	1.2	—
LC_{50}	Fish	*Salmo trutta*	Brown trout	Diazinon	96	MORT	1	—	602	—
LC_{50}	Fish	*Salmo trutta*	Brown trout	Fenthion	96	MORT	1	—	1,330	—
LC_{50}	Fish	*Salmo trutta*	Brown trout	Lindane (gamma-HCH)	96	MORT	4	1.7	1.85	22
LC_{50}	Fish	*Salmo trutta*	Brown trout	Malathion	96	MORT	3	101	101	200
LC_{50}	Fish	*Salmo trutta*	Brown trout	Methyl parathion	96	MORT	3	4,700	4,700	4,740
LC_{50}	Fish	*Salmo trutta*	Brown trout	Propiconazole	96	MORT	3	1,200	3,390	3,390
LC_{50}	Fish	*Salmo trutta*	Brown Trout	Propoxur	96	MORT	1	—	2,110	—
LC_{50}	Fish	*Salmo trutta*	Brown trout	Terbufos	96	MORT	1	—	20	—
LC_{50}	Fish	*Salmonidae*	Trout family	2,4,5-T	96	MORT	1	—	9,400	—
LC_{50}	Fish	*Salmonidae*	Trout family	Diazinon	96	MORT	1	—	8,000	—
LC_{50}	Fish	*Salmonidae*	Trout family	Diuron	96	MORT	1	—	1,100	—
LC_{50}	Fish	*Salmonidae*	Trout family	MCPA	96	MORT	1	—	25,000	—
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Atrazine	96	MORT	3	4,900	4,900	6,300
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Azinphos-methyl	96	MORT	1	—	1.2	—
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Carbaryl	96	MORT	13	900	2,500	5,400
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Diazinon	96	MORT	4	450	785	1,050
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Ethyl parathion (parathion)	96	MORT	2	1,510	1,755	2,000

Table 3. Summary of toxicity values by species—Continued.

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End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Hexazinone	96	MORT	2	100,000	100,000	100,000
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Lindane (gamma-HCH)	96	MORT	1	—	44.3	—
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Malathion	96	MORT	2	120	125	130
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Methomyl	96	MORT	5	1,200	1,500	2,200
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Permethrin	96	MORT	4	2.3	3.55	5.2
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Propoxur	96	MORT	1	—	3,550	—
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	Temephos	96	MORT	8	5,000	12,800	27,000
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	2,4-D	96	MORT	2	44,500	44,750	45,000
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Carbaryl	96	MORT	2	690	690	690
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Carbofuran	96	MORT	2	164	164	164
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Chlorpyrifos	96	MORT	2	73	85.5	98
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Diazinon	96	MORT	2	600	601	602
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout, siscowet	Dichlorvos	96	MORT	2	183	185	187
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Dinoseb	96	MORT	11	32	79	1,400
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Diuron	96	MORT	3	1,200	2,700	2,700
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	EPTC	96	MORT	2	11,500	13,850	16,200
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Ethyl parathion (parathion)	96	MORT	2	1,920	1,920	1,920
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout, siscowet	Fenthion	96	MORT	3	1,370	1,450	1,900
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Lindane (gamma-HCH)	96	MORT	3	24	32	32
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Malathion	96	MORT	2	76	76	76
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Methyl parathion	96	MORT	2	3,780	3,780	3,780
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout	Picloram	96	MORT	11	1,550	2,350	4,950
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout, siscowet	Temephos	96	MORT	4	1,050	2,450	4,800
LC_{50}	Fish	*Sarotherodon galilaeus*	Galilee cichlid	Temephos	96	MORT	1	—	470	—
LC_{50}	Fish	*Scardinius erythrophthalmus*	Rudd	Cypermethrin	96	MORT	1	—	0.4	—
LC_{50}	Fish	*Sciaenops ocellatus*	Red drum	Azinphos-methyl	96	MORT	2	6.2	6.65	7.1
LC_{50}	Fish	*Stizostedion vitreum v.*	Walleye	Malathion	96	MORT	2	64	64	64
LC_{50}	Fish	*Stizostedion vitreum v.*	Walleye	Phorate	96	MORT	1	—	57	—
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Carbaryl	96	MORT	1	—	8,500	—

Table 3. Summary of toxicity values by species—Continued.

[Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; Effect, type of effect measured; IMBL, immobilization; MORT, mortality; —, same as the median value]

End-point	Group	Scientific name	Common name	Compound	Duration (hours)	Effect	No. of bio-assays	Concentration (parts per billion)		
								Minimum	Median	Maximum
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Carbofuran	96	MORT	3	460	480	540
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Chlorothalonil	96	MORT	1	—	120	—
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Dichlorvos	96	MORT	3	1,420	1,710	1,934
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Dieldrin	96	MORT	2	8.4	9.2	10
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Fenthion	96	MORT	2	1,710	1,805	1,900
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Hexazinone	96	MORT	1	—	380,000	—
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Lindane (gamma-HCH)	96	MORT	4	57	1,889	4,000
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Malathion	96	MORT	5	140	500	2,000
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Propoxur	96	MORT	2	7,800	7,900	8,000
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	Temephos	96	MORT	1	—	12,900	—
LC_{50}	Fish	*Tilapia rendalli*	Tilapia	Fenthion	96	MORT	1	—	2,920	—
LC_{50}	Fish	*Tinca tinca*	Tench	2,4,5-T	96	MORT	1	—	8,300	—
LC_{50}	Fish	*Tinca tinca*	Tench	Diuron	96	MORT	1	—	15,500	—
LC_{50}	Fish	*Tinca tinca*	Tench	MCPA	96	MORT	1	—	45,000	—
LC_{50}	Fish	*Tinca tinca*	Tench	Propoxur	96	MORT	4	3,700	8,650	13,300
LC_{50}	Fish	*Trichogaster pectoralis*	Snake-skinned gourami	Bensulfuron-methyl	96	MORT	1	—	1,000,000	—
LC_{50}	Fish	*Trichogaster pectoralis*	Snake-skinned gourami	Metsulfuron methyl	96	MORT	2	100,000	100,000	100,000
LC_{50}	Fish	*Umbra pygmaea*	Eastern mud-minnow	Malathion	96	MORT	1	—	240	—

Table 4. Summary of taxa included in bioassay data set and number of bioassays and compounds per taxon.

[EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms]

Endpoint	Group	Scientific name	Common name	Bioassays	Compounds
			Cladocerans		
EC_{50}	Cladocera	*Ceriodaphnia dubia*	Water flea	2	2
EC_{50}	Cladocera	*Chydorus ovalis*	Water flea	1	1
EC_{50}	Cladocera	*Daphnia carinata*	Water flea	4	4
EC_{50}	Cladocera	*Daphnia laevis*	Water flea	6	3
EC_{50}	Cladocera	*Daphnia longispina*	Water flea	1	1
EC_{50}	Cladocera	*Daphnia magna*	Water flea	300	97
EC_{50}	Cladocera	*Daphnia pulex*	Water flea	41	19
EC_{50}	Cladocera	*Moina australiensis*	Water flea	1	1
EC_{50}	Cladocera	*Simocephalus serrulatus*	Water flea	39	16
EC_{50}	Cladocera	*Simocephalus sp.*	Water flea	2	2
EC_{50}	Cladocera	*Simocephalus vetulus*	Water flea	1	1
			Total	398	100
			Benthic Invertebrates		
LC_{50}	Crustacea	*Echinogammarus tibaldii*	Amphipod	2	2
LC_{50}	Crustacea	*Gammarus fasciatus*	Scud	91	36
LC_{50}	Crustacea	*Gammarus fossarum*	Scud	1	1
LC_{50}	Crustacea	*Gammarus italicus*	Scud	14	14
LC_{50}	Crustacea	*Gammarus lacustris*	Scud	57	25
LC_{50}	Crustacea	*Gammarus pseudolimnaeus*	Scud	24	10
LC_{50}	Crustacea	*Gammarus pulex*	Scud	13	6
LC_{50}	Crustacea	*Hyalella azteca*	Scud	6	5
LC_{50}	Oligochaeta	*Branchiura sowerbyi*	Oligochaete	1	1
LC_{50}	Oligochaeta	*Lumbriculus variegatus*	Oligochaete	2	2
LC_{50}	Oligochaeta	*Tubificidae*	Oligochaete	3	3
LC_{50}	Crustacea	*Acartia tonsa*	Calanoid copepod	3	3
LC_{50}	Crustacea	*Artemia salina*	Brine shrimp	3	2
LC_{50}	Crustacea	*Asellus communis*	Aquatic sowbug	1	1
LC_{50}	Crustacea	*Caridina rajadhari*	Freshwater prawn	2	2
LC_{50}	Crustacea	*Cyclops strenuus*	Copepod	1	1
LC_{50}	Crustacea	*Cypridopsis vidua*	Seed shrimp	1	1
LC_{50}	Crustacea	*Eudiaptomus gracilis*	Calanoid copepod	1	1
LC_{50}	Crustacea	*Eurytemora affinis*	Calanoid copepod	4	2
LC_{50}	Crustacea	*Macrobrachium dayanum*	Freshwater prawn	1	1
LC_{50}	Crustacea	*Macrobrachium rosenbergii*	Giant river prawn	3	2
LC_{50}	Crustacea	*Neomysis mercedis*	Opposum Shrimp	10	3
LC_{50}	Crustacea	*Orconectes immunis*	Crayfish	2	2
LC_{50}	Crustacea	*Macrobrachium lamarrei*	Prawn	1	1
LC_{50}	Crustacea	*Macrobrachium malcolmsonii*	Monsson River prawn	1	1
LC_{50}	Crustacea	*Orconectes nais*	Crayfish	22	11
LC_{50}	Crustacea	*Palaemonetes kadiakensis*	Glass shrimp	31	12
LC_{50}	Crustacea	*Palaemonetes pugio*	Daggerblade grass shrimp	12	8
LC_{50}	Crustacea	*Palaemonetes sp*	Grass shrimp	12	1
LC_{50}	Crustacea	*Palaemonetes vulgaris*	Marsh grass shrimp	5	5

Table 4. Summary of taxa included in bioassay data set and number of bioassays and compounds per taxon.

[EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms]

Endpoint	Group	Scientific name	Common name	Bioassays	Compounds
LC_{50}	Crustacea	*Procambarus acutus acutus*	White river crayfish	10	9
LC_{50}	Crustacea	*Procambarus blandingii*	Crayfish	1	1
LC_{50}	Crustacea	*Procambarus clarkii*	Red swamp crayfish	17	12
LC_{50}	Crustacea	*Procambarus simulans*	Crayfish	2	2
LC_{50}	Crustacea	*Procambarus sp.*	Crayfish	8	5
LC_{50}	Insecta	*Acroneuria ruralis*	Stonefly	1	1
LC_{50}	Insecta	*Acroneuria sp*	Stonefly	1	1
LC_{50}	Insecta	*Aedes aegypti*	Yellow fever mosquito	7	2
LC_{50}	Insecta	*Aedes excrucians*	Mosquito	1	1
LC_{50}	Insecta	*Aedes stimulans*	Mosquito	4	2
LC_{50}	Insecta	*Arctopsyche grandis*	Caddisfly	4	2
LC_{50}	Insecta	*Atherix variegata*	Snipefly	2	1
LC_{50}	Insecta	*Baetis intermedius*	Mayfly	1	1
LC_{50}	Insecta	*Baetis rhodani*	Mayfly	2	2
LC_{50}	Insecta	*Brachythermis contaminata*	Dragonfly	2	2
LC_{50}	Insecta	*Chaoborus flavicans*	Midge	1	1
LC_{50}	Insecta	*Chaoborus obscuripes*	Midge	1	1
LC_{50}	Insecta	*Chaoborus sp*	Phantom midge	1	1
LC_{50}	Insecta	*Chironomus plumosus*	Midge	4	1
LC_{50}	Insecta	*Chironomus riparius*	Midge	5	1
LC_{50}	Insecta	*Chironomus tentans*	Midge	7	6
LC_{50}	Insecta	*Chironomus thummi*	Midge	2	1
LC_{50}	Insecta	*Claassenia sabulosa*	Stonefly	15	5
LC_{50}	Insecta	*Cloeon dipterum*	Mayfly	2	2
LC_{50}	Insecta	*Cloeon sp*	Mayfly	1	1
LC_{50}	Insecta	*Corixa punctata*	Water boatman	2	1
LC_{50}	Insecta	*Drunella grandis*	Mayfly	6	6
LC_{50}	Insecta	*Heptagenia sulphurea*	Mayfly	2	1
LC_{50}	Insecta	*Hesperoperla pacifica*	Golden stonefly	16	6
LC_{50}	Insecta	*Hexagenia bilineata*	Mayfly	3	2
LC_{50}	Insecta	*Hexagenia sp.*	Mayfly	1	1
LC_{50}	Insecta	*Hydropsyche angustipennis*	Caddisfly	1	1
LC_{50}	Insecta	*Hydropsyche californica*	Caddisfly	4	2
LC_{50}	Insecta	*Hydropsyche siltalai*	Caddisfly	3	1
LC_{50}	Insecta	*Hydropsyche sp.*	Caddisfly	3	2
LC_{50}	Insecta	*Ischnura sp.*	Damselfly	1	1
LC_{50}	Insecta	*Ischnura verticalis*	Damselfly	4	3
LC_{50}	Insecta	*Isogenus sp.*	Stonefly	3	2
LC_{50}	Insecta	*Isonychia sp*	Mayfly	1	1
LC_{50}	Insecta	*Isoperla sp.*	Stonefly	2	1
LC_{50}	Insecta	*Leptoceridae*	Longhorn caddisfly family	1	1
LC_{50}	Insecta	*Lestes congener*	Damselfly	7	6
LC_{50}	Insecta	*Limnephilus bipunctatus*	Caddisfly	1	1
LC_{50}	Insecta	*Limnephilus lunatus*	Caddisfly	2	1
LC_{50}	Insecta	*Limnephilus sp.*	Caddisfly	1	1

Table 4. Summary of taxa included in bioassay data set and number of bioassays and compounds per taxon.

[EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms]

Endpoint	Group	Scientific name	Common name	Bioassays	Compounds
LC_{50}	Insecta	*Neoplea striola*	Pygmy backswimmer	2	1
LC_{50}	Insecta	*Notonecta undulata*	Backswimmer	7	7
LC_{50}	Insecta	*Ophiogomphus sp*	Dragonfly	1	1
LC_{50}	Insecta	*Paraleptophlebia pallipes*	Mayfly	1	1
LC_{50}	Insecta	*Peltodytes sp*	Beetle	8	8
LC_{50}	Insecta	*Pteronarcella badia*	Stonefly	21	8
LC_{50}	Insecta	*Pteronarcys californica*	Stonefly	82	28
LC_{50}	Insecta	*Pteronarcys sp.*	Stonefly	3	3
LC_{50}	Insecta	*Ranatra elongata*	Water scorpion	1	1
LC_{50}	Insecta	*Sigara striata*	Corixidae	1	1
LC_{50}	Insecta	*Skwala sp.*	Stonefly	5	2
LC_{50}	Insecta	*Sphaerodema sp.*	Giant waterbug	1	1
LC_{50}	Crustacea	*Asellus aquaticus*	Aquatic sowbug	1	1
LC_{50}	Crustacea	*Asellus brevicaudus*	Aquatic sowbug	27	13
LC_{50}	Mollusca	*Anodonta anatina*	Fresh-water mussel	1	1
LC_{50}	Mollusca	*Bellamya bengalensis*	Snail	1	1
LC_{50}	Mollusca	*Bellamya dissimilis*	Snail	1	1
LC_{50}	Mollusca	*Corbicula fluminea*	Asiatic clam	1	1
LC_{50}	Mollusca	*Corbicula manilensis*	Asiatic clam	1	1
LC_{50}	Mollusca	*Egeria radiata*	Freshwater Clam	1	1
LC_{50}	Mollusca	*Lamellidens corrianus*	Bivalve	4	1
LC_{50}	Mollusca	*Lymnaea acuminata*	Pond snail	9	7
LC_{50}	Mollusca	*Lymnaea stagnalis*	Great pond snail	1	1
LC_{50}	Mollusca	*Melanoides tuberculata*	Snail	1	1
LC_{50}	Mollusca	*Physa fontinalis*	Bladder snail	1	1
LC_{50}	Mollusca	*Physa virgata*	Snail	1	1
LC_{50}	Mollusca	*Thiara sp.*	Snail	1	1
LC_{50}	Mollusca	*Tilapia nilotica*	Nile tilapia	3	1
LC_{50}	Mollusca	*Viviparus bengalensis*	Snail	3	1
LC_{50}	Nematoda	*Monhystera disjuncta*	Nematode	1	1
LC_{50}	Oligochaeta	*Limnodrilus hoffmeisteri*	Oligochaeta	2	2
LC_{50}	Oligochaeta	*Tubifex tubifex*	Oligochaeta	4	3
LC_{50}	Turbellaria	*Dugesia tigrina*	Turbellaria	4	3
LC_{50}	Turbellaria	*Polycelis felina*	Turbellaria	1	1
			Total	699	64
			Fish		
LC_{50}	Fish	*Abramis brama*	Bream	2	1
LC_{50}	Fish	*Ameiurus melas*	Black bullhead	28	15
LC_{50}	Fish	*Ameiurus natalis*	Yellow bullhead	1	1
LC_{50}	Fish	*Ameiurus nebulosus*	Brown bullhead	1	1
LC_{50}	Fish	*Ameiurus sp.*	Bullhead catfish	7	5
LC_{50}	Fish	*Anguilla anguilla*	European eel	19	5
LC_{50}	Fish	*Anguilla rostrata*	American eel	8	6
LC_{50}	Fish	*Barbus gonionotus*	Silver barb	3	2
LC_{50}	Fish	*Carassius auratus*	Goldfish	56	26

Table 4. Summary of taxa included in bioassay data set and number of bioassays and compounds per taxon.

[EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms]

Endpoint	Group	Scientific name	Common name	Bioassays	Compounds
LC_{50}	Fish	*Carassius carassius*	Crucian carp	2	2
LC_{50}	Fish	*Centrarchidae*	Sunfish family	5	1
LC_{50}	Fish	*Channa orientalis*	smooth-breasted snakefish	4	1
LC_{50}	Fish	*Channa punctata*	Snake-head catfish	3	3
LC_{50}	Fish	*Cirrhinus mrigala*	Carp, hawk fish	3	3
LC_{50}	Fish	*Clarias batrachus*	Walking catfish	12	8
LC_{50}	Fish	*Coregonus lavaretus*	Whitefish	2	1
LC_{50}	Fish	*Ctenopharyngodon idella*	Grass carp	2	2
LC_{50}	Fish	*Cyprinella lutrensis*	Red shiner	2	2
LC_{50}	Fish	*Cyprinodon variegatus*	Sheepshead minnow	74	37
LC_{50}	Fish	*Cyprinus carpio*	Carp	95	30
LC_{50}	Fish	*Danio rerio*	Zebra danio	5	2
LC_{50}	Fish	*Esox lucius*	Northern pike	4	2
LC_{50}	Fish	*Fundulus diaphanus*	Banded killifish	4	4
LC_{50}	Fish	*Fundulus heteroclitus*	Mummichog	19	6
LC_{50}	Fish	*Gambusia affinis*	Western mosquitofish	33	22
LC_{50}	Fish	*Gambusia sp*	Western mosquitofish	2	2
LC_{50}	Fish	*Gasterosteus aculeatus*	Threespine stickleback	12	7
LC_{50}	Fish	*Gila elegans*	Bonytail	4	2
LC_{50}	Fish	*Heteropneustes fossilis*	Indian catfish	3	3
LC_{50}	Fish	*Ictalurus*	Bullhead, catfish	1	1
LC_{50}	Fish	*Ictalurus punctatus*	Channel catfish	141	51
LC_{50}	Fish	*Jordanella floridae*	Flagfish	5	3
LC_{50}	Fish	*Labeo rohita*	Rohu	7	4
LC_{50}	Fish	*Lagodon rhomboides*	Pinfish	1	1
LC_{50}	Fish	*Leiostomus xanthurus*	Spot	1	1
LC_{50}	Fish	*Lepidocephalichthys thermalis*	Loach	1	1
LC_{50}	Fish	*Lepomis cyanellus*	Green sunfish	22	9
LC_{50}	Fish	*Lepomis gibbosus*	Pumpkinseed	5	5
LC_{50}	Fish	*Lepomis macrochirus*	Bluegill	583	107
LC_{50}	Fish	*Lepomis microlophus*	Redear sunfish	9	7
LC_{50}	Fish	*Leuciscus idus*	Ide, silver or golden orfe	4	3
LC_{50}	Fish	*Menidia beryllina*	Inland silverside	8	5
LC_{50}	Fish	*Micropterus dolomieui*	Smallmouth bass	3	2
LC_{50}	Fish	*Micropterus salmoides*	Largemouth bass	42	17
LC_{50}	Fish	*Morone americana*	White perch	4	4
LC_{50}	Fish	*Morone saxatilis*	Striped bass	64	17
LC_{50}	Fish	*Mugil cephalus*	Striped mullet	6	6
LC_{50}	Fish	*Mystus vittatus*	Striped catfish	2	1
LC_{50}	Fish	*Notropis atherinoides*	Emerald shiner	2	2
LC_{50}	Fish	*Oncorhynchus clarki*	Cutthroat trout	77	18
LC_{50}	Fish	*Oncorhynchus gorbuscha*	Pink salmon	7	3
LC_{50}	Fish	*Oncorhynchus keta*	Chum salmon	5	3
LC_{50}	Fish	*Oncorhynchus kisutch*	Coho salmon	42	14
LC_{50}	Fish	*Oncorhynchus mykiss*	Rainbow trout	538	113
LC_{50}	Fish	*Oncorhynchus nerka*	Sockeye salmon	7	3

Table 4. Summary of taxa included in bioassay data set and number of bioassays and compounds per taxon.

[EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms]

Endpoint	Group	Scientific name	Common name	Bioassays	Compounds
LC_{50}	Fish	*Oncorhynchus tshawytscha*	Chinook salmon	18	12
LC_{50}	Fish	*Perca flavescens*	Yellow perch	25	10
LC_{50}	Fish	*Perca fluviatilis*	Perch	1	1
LC_{50}	Fish	*Phoxinus phoxinus*	Minnow	1	1
LC_{50}	Fish	*Pimephales notatus*	Bluntnose minnow	1	1
LC_{50}	Fish	*Pimephales promelas*	Fathead minnow	239	49
LC_{50}	Fish	*Poecilia reticulata*	Guppy	63	27
LC_{50}	Fish	*Pomoxis nigromaculatus*	Black crappie	4	2
LC_{50}	Fish	*Ptychocheilus lucius*	Colorado squawfish	3	2
LC_{50}	Fish	*Pungitius pungitius*	Ninespine stickleback	1	1
LC_{50}	Fish	*Rutilus rutilus*	Roach	1	1
LC_{50}	Fish	*Salmo salar*	Atlantic salmon	36	6
LC_{50}	Fish	*Salmo trutta*	Brown trout	28	12
LC_{50}	Fish	*Salmonidae*	Trout family	4	4
LC_{50}	Fish	*Salvelinus fontinalis*	Brook trout	46	12
LC_{50}	Fish	*Salvelinus namaycush*	Lake trout, siscowet	55	16
LC_{50}	Fish	*Sarotherodon galilaeus*	Galilee cichlid	1	1
LC_{50}	Fish	*Scardinius erythrophthalmus*	Rudd	1	1
LC_{50}	Fish	*Sciaenops ocellatus*	Red drum	2	1
LC_{50}	Fish	*Stizostedion vitreum v.*	Walleye	3	2
LC_{50}	Fish	*Tilapia mossambica*	Mozambique tilapia	25	11
LC_{50}	Fish	*Tilapia rendalli*	Tilapia	1	1
LC_{50}	Fish	*Tinca tinca*	Tench	7	4
LC_{50}	Fish	*Trichogaster pectoralis*	Snake-skinned gourami	3	2
LC_{50}	Fish	*Umbra pygmaea*	Eastern mudminnow	1	1
			Total	2,572	122

Table 5. Summary of median toxicity (48-hour EC_{50}) concentrations for cladocerans.

[To compute the pesticide toxicity index (PTI) for cladocerans, use the median values from this table as $MTC_{cladocerans,i}$ in equation (1). Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); MTC, median toxicity concentration; N, number of bioassays; ppb, parts per billion; —, same as the median value]

Compound	N	Minimum (ppb)	Median (ppb)	Maximum (ppb)
2,4-D	3	3,200	4,900	25,000
2,4-DB	1	—	25,000	—
2,6-Dinitro-2-methylphenol	2	145	1,422.5	2,700
3,4-Dichloroaniline	10	54	709.45	2,253.5
3-Trifluoromethylaniline	1	—	2,700	—
Acetochlor	3	7,200	8,200	14,000
Alachlor	8	7,700	15,700	35,000
Aldicarb	3	51	65	410.7
Aldicarb sulfone	3	280	369	556
Aldicarb sulfoxide	2	43	50	57
alpha-HCH	2	800	900	1,000
Atrazine	4	6,900	41,500	115,000
Azinphos-methyl	4	1.1	1.55	4.4
Bendiocarb	1	—	29.2	—
Benfluralin	1	—	2,186	—
Bensulfuron-methyl	2	99,000	99500	100,000
Bifenthrin	1	—	1.6	—
Bromacil	1	—	121,000	—
Bromoxynil	24	41	126.5	74,000
Butylate	2	11,900	85,250	158,600
Carbaryl	16	2.77	6.93	7,100
Carbofuran	8	2	39.8	86.1
Chlorimuron-ethyl	1	—	10,000	—
Chlorothalonil	4	70	97	172
Chlorpyrifos	3	0.1	0.4	1.7
Cyanazine	9	35,500	84,000	106,000
Cycloate	2	24,000	24,000	24,000
Cyfluthrin	2	0.025	0.083	0.141
Cyhalothrin	5	0.04	0.23	0.76
Cypermethrin	5	1	1.56	111,000
DCPA (Dacthal)	2	27,000	82,500	138,000
Diazinon	17	0.5	1.22	1.8
Dicamba	2	110,700	430,350	750,000
Dichlobenil	6	3,700	5,800	6,200
Dichlorprop (2,4-DP)	2	5,400	5,825	6,250
Dichlorvos	5	0.066	0.26	1,000
Dicrotophos	2	12.7	141.35	270
Dieldrin	7	130	240	251
Diphenamid	2	58,000	58,000	58,000
Disulfoton	1	—	13	—
Diuron	7	1,400	2,000	8,400
EPTC	3	6,400	7,500	14,150
Ethalfluralin	1	—	60	—
Ethion	3	0.056	2.8	4.7
Ethoprop	3	43.9	93	690,000
Ethyl parathion	14	0.37	0.65	7.2
Fenamiphos	4	1.3	1.75	7.55
Fenthion	6	0.62	3.06	50
Fipronil	3	29	100	190
Flumetralin	2	2.8	30.9	59
Flumetsulam	1	—	254,000	—
Fonofos	3	2	8.37	15.5

Table 5. Summary of median toxicity (48-hour EC_{50}) concentrations for cladocerans—Continued.

[To compute the pesticide toxicity index (PTI) for cladocerans, use the median values from this table as $MTC_{cladocerans,i}$ in equation (1). Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); MTC, median toxicity concentration; N, number of bioassays; ppb, parts per billion; —, same as the median value]

Compound	N	Minimum (ppb)	Median (ppb)	Maximum (ppb)
Hexazinone	2	85,000	118,300	151,600
Imazethapyr	2	280,000	640,000	1,000,000
Iprodione	3	360	430	7,200
Isofenphos	4	1.6	4.1	4.6
Lindane	17	100	656	8,000
Linuron	4	120	240	1,100
Malathion	15	0.59	1.8	100
Metalaxyl	3	12,500	29,300	121,000
Methidathion	2	6.4	9.15	11.9
Methiocarb	1	—	19	—
Methomyl	6	7.6	8.8	3,200
Methyl parathion	10	0.14	7.9	28.2
Metolachlor	3	23,500	25,100	26,000
Metribuzin	3	4,180	4,200	98,500
Metsulfuron methyl	2	150,000	150,000	150,000
Molinate	4	2,400	12,050	24,000
Myclobutanil	1	—	11,000	—
Napropamide	2	14,300	19,500	24,700
Oryzalin	1	—	1,500	—
Oxamyl	5	420	1,950	5,700
Pebulate	1	—	6,830	—
Pendimethalin	2	280	2,690	5,100
Phorate	4	18.23	21.75	37
Phosmet	5	5.6	10.9	24
Profenofos	5	0.5	1.06	2.8
Prometon	3	25,700	38,000	59,800
Prometryne	2	9,700	14,145	18,590
Propachlor	3	6,900	7,800	13,000
Propanil	3	1,200	6,700	11,400
Propargite	2	74	82.5	91
Propham	4	8,000	10,000	10,000
Propiconazole	3	3,200	4,800	11,300
Propoxur	2	11	19.1	27.2
Simazine	2	1,100	1,100	1,100
Sulfometuron-methyl	3	12,500	150,000	1,000,000
Sulfotepp (Dithion)	1	—	2.5	—
Sulprofos	3	0.75	0.83	5.1
Tebupirimphos	3	0.078	0.188	0.19
Tebuthiuron	1	—	297,000	—
Tefluthrin	2	0.07	0.1275	0.185
Temephos	2	0.011	0.2755	0.54
Terbacil	1	—	65,000	—
Terbufos	4	0.31	3.35	13
Terbuthylazine	2	5,000	13,100	21,200
Thiobencarb	4	101	335	1,200
Triallate	2	91	260.5	430
Tribufos	3	6.8	61	110
Trifluralin	7	240	625	900

Table 6. Summary of median toxicity (96-hour LC_{50}) concentrations for benthic invertebrates.

[To compute the pesticide toxicity index (PTI) for benthic invertebrates, use the median values from this table as $MTC_{benthic\ invertebrates,i}$ in equation (1). Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. LC_{50}, concentration at which 50 percent mortality occurred in test organisms; MTC, median toxicity concentration; N, number of bioassays; ppb, parts per billion; —, same as the median value]

Compound	N	Minimum (ppb)	Median (ppb)	Maximum (ppb)
2-(2,4,5-Trichlorophenoxy) propionic acid	1	—	340	—
2,4-D	4	1,600	8,700	144,100
2,4-DB	3	15,000	15,000	15,000
2,6-Dinitro-2-methylphenol	3	320	320	1,100
3,4-Dichloroaniline	8	3.4	6.4	7,400
Alachlor	2	19,500	19,600	19,700
Aldicarb	2	420	5,960	11,500
alpha-HCH	1	—	500	—
Atrazine	9	94	9,000	14,900
Azinphos-methyl	31	0.1	1.2	56
Bendiocarb	3	11	43	5,550
Benfluralin	2	1,100	1,100	1,100
Bensulfuron-methyl	1	—	71,000	—
Butylate	4	10,000	11,000	15,000
Carbaryl	51	1.7	16	6,933
Carbofuran	12	0.119	16.5	5,294
Chlorpyrifos	31	0.04	0.57	83
Cyanazine	2	2,000	2,000	2,000
Cycloate	4	2,600	2,600	2,600
Cypermethrin	12	0.012	0.4695	2,800
DCPA (Dacthal)	1	—	6,200	—
Diazinon	19	0.03	25	6,160
Dicamba	2	3,900	3,900	3,900
Dichlobenil	10	6,600	10,500	35,000
Dichlorvos	16	0.0214	36.65	400,000
Dicrotophos	6	430	1,925	6,000
Dieldrin	30	0.5	24	6,710
Dinoseb	1	—	1,800	—
Diphenamid	5	32,000	100,000	100,000
Disulfoton	21	3.9	27	27,000
Diuron	8	160	950	15,500
EPTC	6	23,000	23,000	66,000
Ethion	6	1.8	4.2	9.4
Ethyl parathion	62	0.036	3.5	5,230
Fenamiphos	2	11	15.5	20
Fenthion	17	1.6	10	1,800
Lindane	55	1	12.9	145,000
Malathion	68	0.5	12	50,000
Methidathion	1	—	280	—
Methiocarb	12	5	62	8,800
Methomyl	22	29	240	1,050
Methyl parathion	14	0.2	9.4	4,100
Molinate	11	300	4,500	21,800
Oryzalin	2	190	295	400
Oxamyl	1	—	220	—
p,p′-DDE	1	—	1,050	—
Pebulate	2	10,000	10,000	10,000
Permethrin	3	0.1	0.17	210

Table 6. Summary of median toxicity (96-hour LC_{50}) concentrations for benthic invertebrates—*Continued.*

[To compute the pesticide toxicity index (PTI) for benthic invertebrates, use the median values from this table as $MTC_{benthic\ invertebrates,i}$ in equation (1). Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. LC_{50}, concentration at which 50 percent mortality occurred in test organisms; MTC, median toxicity concentration; N, number of bioassays; ppb, parts per billion; —, same as the median value]

Compound	N	Minimum (ppb)	Median (ppb)	Maximum (ppb)
Phorate	14	0.6	6.5	22,000
Phosmet	4	2	38.1	90
Picloram	3	27	48	48,000
Profenofos	3	0.8	1.8	86
Propanil	1	—	16,000	—
Propargite	1	—	101	—
Propham	2	10,000	14,500	19,000
Propiconazole	11	900	1,200	49,000
Propoxur	13	13	50	146,000
Simazine	3	1,900	13,000	13,00
Sulfometuron-methyl	1	—	12,174,000	—
Temephos	10	0.44	31	640
Terbufos	17	0.17	5.6	12
Thiobencarb	8	200	1,000	9,240
Tribufos	5	27	100	5,600
Trifluralin	13	37	2,800	26,000

Table 7. Summary of median toxicity (96-hour LC_{50}) concentrations for fish.

[To compute the pesticide toxicity index (PTI) for fish, use the median values from this table as $MTC_{fish,i}$ in equation (1). Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. LC_{50}, concentration at which 50 percent mortality occurred in test organisms; MTC, median toxicity concentration; N, number of bioassays; ppb, parts per billion; —, same as the median value]

Compound	N	Minimum (ppb)	Median (ppb)	Maximum (ppb)
2-(2,4,5-Trichlorophenoxy) propionic acid	11	350	14,000	86,000
2,4,5-T	12	150	15,500	43,700
2,4-D	43	1,400	44,500	358,000
2,4-DB	9	2,000	7,500	18,000
2,6-Dinitro-2-methylphenol	8	66	1,720	2,720
3,4-Dichloroaniline	13	53	7,700	9,960
4-Chloro-2-methylphenol	1	—	2,300	—
Acetochlor	8	380	1,400	3,900
Alachlor	25	240	4,200	12,400
Aldicarb	14	41	560	7,400
Aldicarb sulfone	2	42,000	47,500	53,000
alpha-Endosulfan	3	0.16	0.33	1
alpha-HCH	1	—	1,490	—
Atrazine	33	2,000	15,000	69,000
Azinphos-methyl	107	0.36	22.8	4,270
Bendiocarb	8	470	1,275	1,650
Benfluralin	7	65	420	810
Bensulfuron-methyl	7	63,000	150,000	1,000,000
Bentazon	2	978,000	2,426,000	3,874,000
beta-Endosulfan	2	6.6	6.85	7.1
Bifenthrin	2	0.15	0.25	0.35
Bromacil	5	36,000	127,000	186,000
Bromoxynil	7	2,090	13,800	23,000
Butylate	14	210	6,200	202,500
Carbaryl	165	140	4,330	290,000
Carbofuran	48	80	380	10,250
Chlorimuron-ethyl	2	2,000	5,200	8,400
Chlorothalonil	25	7.6	51	430
Chlorpyrifos	53	0.58	38	806
Cyanazine	16	9,000	16,850	22,500
Cycloate	11	4,500	6,000	10,000
Cyfluthrin	4	0.3	0.775	1.5
Cyhalothrin	6	0.21	0.5	11.2
Cypermethrin	27	0.23	3.2	36,300
DCPA (Dacthal)	2	6,600	18,300	30,000
Diazinon	79	22	602	10,300
Dicamba	8	28,000	135,350	465,000
Dichlobenil	20	4,930	8,850	6,200,000
Dichlorprop (2,4-DP)	18	500	1,450	6,100
Dichlorvos	32	2.5	1,144.5	180,000
Dicrotophos	5	2,800	7,660	24,200
Dieldrin	83	0.62	10	10,000
Dimethomorph	1	—	6,200	—
Dinoseb	42	28	96.5	1,400
Diphenamid	8	32,000	59,150	97,000
Disulfoton	35	8.2	1,850	13,900
Diuron	30	500	5,400	84,000
EPTC	13	11,500	20,720	26,700
Ethalfluralin	6	32	119	260
Ethion	15	73	210	7,600
Ethoprop	13	180	2,070	13,800
Ethyl parathion	60	17.8	1,400	10,000

Table 7. Summary of median toxicity (96-hour LC_{50}) concentrations for fish—*Continued.*

[To compute the pesticide toxicity index (PTI) for fish, use the median values from this table as $MTC_{fish,i}$ in equation (1). Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. LC_{50}, concentration at which 50 percent mortality occurred in test organisms; MTC, median toxicity concentration; N, number of bioassays; ppb, parts per billion; —, same as the median value]

Compound	N	Minimum (ppb)	Median (ppb)	Maximum (ppb)
Fenamiphos	10	4.5	111.55	2,653
Fenthion	52	453	1,635	3,500
Fenuron	1	—	204,000	—
Fipronil	5	25	83	560
Flumetralin	6	3.2	19.9	24
Flumetsulam	3	293,000	300,000	300,000
Fluometuron	26	600	36,500	96,000
Fonofos	16	5.1	20	2,800
Hexazinone	25	100,000	317,000	1,964,000
Imazethapyr	6	240,000	332,000	423,000
Iprodione	6	3,060	3,950	7,800
Isofenphos	9	1,300	2,100	20,000
Lindane	116	1.1	68	16,000
Linuron	8	890	6,100	16,400
Malathion	146	0.19	200	52,200
MCPA	6	25,000	75,000	97,000
MCPB	2	3,300	7,900	12,500
Metalaxyl	9	18,400	100,000	150,000
Methidathion	12	2.2	14	30,000
Methiocarb	12	0.75	538	4,700
Methomyl	75	300	1,250	32,000
Methyl parathion	81	5	5,360	161,000
Metolachlor	8	3,900	8,200	10,000
Metribuzin	10	3,400	80,885	147,000
Metsulfuron methyl	6	100,000	150,000	150,000
Molinate	31	200	14,000	42,800
Myclobutanil	2	2,400	3,300	4,200
Napropamide	6	9,400	12,650	14,000
Napthol	7	1,460	3,570	4,630
Norflurazon	3	8,100	9,580	16,300
Oryzalin	3	2,880	3,260	3,450
Oxamyl	14	2,600	6,415	27,500
Oxyfluorfen	3	200	400	410
p,p′-DDE	3	32	96	240
Paraoxon-ethyl	2	250	290	330
Pebulate	3	7,400	7,900	10,000
Pendimethalin	12	138	960	90,400
Permethrin	34	0.79	6.8	88
Phorate	24	1	10.1	280
Phosmet	101	22	480	23,000
Picloram	55	1,400	8,600	310,000
Profenofos	16	13.5	22.25	2,390
Prometon	13	12,000	19,600	47,300
Prometryne	8	2,300	4,250	10,000
Pronamide	3	72,000	150,000	350,000
Propachlor	4	170	255	420
Propanil	6	2,300	6,450	14,000
Propargite	6	31	130.5	455
Propetamphos	6	190	1,020	15,000
Propham	4	29,000	33,500	86,500
Propiconazole	27	830	5,500	506,000
Propoxur	34	1,300	6,970	180,000

Table 7. Summary of median toxicity (96-hour LC_{50}) concentrations for fish—*Continued*.

[To compute the pesticide toxicity index (PTI) for fish, use the median values from this table as $MTC_{fish,i}$ in equation (1). Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. LC_{50}, concentration at which 50 percent mortality occurred in test organisms; MTC, median toxicity concentration; N, number of bioassays; ppb, parts per billion; —, same as the median value]

Compound	N	Minimum (ppb)	Median (ppb)	Maximum (ppb)
Siduron	3	130	13,000	15,000
Simazine	32	90	56,000	822,000
Sulfometuron-methyl	4	12,500	80,250	150,000
Sulfotepp (Dithion)	6	1.6	269	1,000
Sulprofos	5	1,000	14,000	38,000
Tebupirimphos	3	7.7	89	2,220
Tebuthiuron	2	106,000	124,500	143,000
Tefluthrin	4	0.06	3.815	8.8
Temephos	92	158	6,750	221,000
Terbacil	6	46,200	90,950	112,000
Terbufos	30	0.77	6.15	1,800
Terbuthylazine	7	1,600	7,000	66,000
Thiobencarb	41	110	910	2,500
Triallate	5	1,200	1,330	2,400
Tribenuron-methyl	2	1,000,000	1,000,000	1,000,000
Tribufos	26	245	745	18,780
Triclopyr	19	260	1,300	9,700
Trifluralin	28	8.4	95.5	12,000

Table 8. For each pesticide, the number of bioassays, median toxicity concentration, and relative toxicity ratio within each of three taxonomic groups: cladocerans, benthic invertebrates, and fish.

[Rankings are based on the median LC_{50} or EC_{50} for that taxonomic group. Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. For convenience, all relative toxicity ratios are shown with seven decimal places, but this is not intended to convey information about precision. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; N, number of bioassays; ppb, parts per billion]

Compound	N	Median LC_{50} or EC_{50} value (ppb)	Relative toxicity ratio
Cladocerans			
Cyfluthrin	2	0.083	1.0000000
Tefluthrin	2	0.1275	0.6509804
Tebupirimphos	3	0.188	0.4414894
Cyhalothrin	5	0.23	0.3608696
Dichlorvos	5	0.26	0.3192308
Temephos	2	0.2755	0.3012704
Chlorpyrifos	3	0.4	0.2075000
Ethyl parathion	14	0.65	0.1276923
Sulprofos	3	0.83	0.1000000
Profenofos	5	1.06	0.0783019
Diazinon	17	1.22	0.0680328
Azinphos-methyl	4	1.55	0.0535484
Cypermethrin	5	1.56	0.0532051
Bifenthrin	1	1.6	0.0518750
Fenamiphos	4	1.75	0.0474286
Malathion	15	1.8	0.0461111
Sulfotepp (Dithion)	1	2.5	0.0332000
Ethion	3	2.8	0.0296429
Fenthion	6	3.06	0.0271242
Terbufos	4	3.35	0.0247761
Isofenphos	4	4.1	0.0202439
Carbaryl	16	6.93	0.0119769
Methyl parathion	10	7.9	0.0105063
Fonofos	3	8.37	0.0099164
Methomyl	6	8.8	0.0094318
Methidathion	2	9.15	0.0090710
Phosmet	5	10.9	0.0076147
Disulfoton	1	13	0.0063846
Methiocarb	1	19	0.0043684
Propoxur	2	19.1	0.0043455
Phorate	4	21.75	0.0038161
Bendiocarb	1	29.2	0.0028425
Flumetralin	2	30.9	0.0026861
Carbofuran	8	39.8	0.0020854
Aldicarb sulfoxide	2	50	0.0016600
Ethalfluralin	1	60	0.0013833
Tribufos	3	61	0.0013607
Aldicarb	3	65	0.0012769
Propargite	2	82.5	0.0010061

Table 8. For each pesticide, the number of bioassays, median toxicity concentration, and relative toxicity ratio within each of three taxonomic groups: cladocerans, benthic invertebrates, and fish—Continued.

[Rankings are based on the median LC_{50} or EC_{50} for that taxonomic group. Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. For convenience, all relative toxicity ratios are shown with seven decimal places, but this is not intended to convey information about precision. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; N, number of bioassays; ppb, parts per billion]

Compound	N	Median LC_{50} or EC_{50} value (ppb)	Relative toxicity ratio
Ethoprop	3	93	0.0008925
Chlorothalonil	4	97	0.0008557
Fipronil	3	100	0.0008300
Bromoxynil	24	126.5	0.0006561
Dicrotophos	2	141.35	0.0005872
Dieldrin	7	240	0.0003458
Linuron	4	240	0.0003458
Triallate	2	260.5	0.0003186
Thiobencarb	4	335	0.0002478
Aldicarb sulfone	3	369	0.0002249
Iprodione	3	430	0.0001930
Trifluralin	7	625	0.0001328
Lindane	17	656	0.0001265
3,4-Dichloroaniline	10	709.45	0.0001170
alpha-HCH	2	900	0.0000922
Simazine	2	1,100	0.0000755
2,6-Dinitro-2-methylphenol	2	1,422.5	0.0000583
Oryzalin	1	1,500	0.0000553
Oxamyl	5	1,950	0.0000426
Diuron	7	2,000	0.0000415
Benfluralin	1	2,186	0.0000380
Pendimethalin	2	2,690	0.0000309
3-Trifluoromethylaniline	1	2,700	0.0000307
Metribuzin	3	4,200	0.0000198
Propiconazole	3	4,800	0.0000173
2,4-D	3	4,900	0.0000169
Dichlobenil	6	5,800	0.0000143
Dichlorprop (2,4-DP)	2	5,825	0.0000142
Propanil	3	6,700	0.0000124
Pebulate	1	6,830	0.0000122
EPTC	3	7,500	0.0000111
Propachlor	3	7,800	0.0000106
Acetochlor	3	8,200	0.0000101
Chlorimuron-ethyl	1	10,000	0.0000083
Propham	4	10,000	0.0000083
Myclobutanil	1	11,000	0.0000075
Molinate	4	12,050	0.0000069
Terbuthylazine	2	13,100	0.0000063
Prometryne	2	14,145	0.0000059
Alachlor	8	15,700	0.0000053

Table 8. For each pesticide, the number of bioassays, median toxicity concentration, and relative toxicity ratio within each of three taxonomic groups: cladocerans, benthic invertebrates, and fish—Continued.

[Rankings are based on the median LC_{50} or EC_{50} for that taxonomic group. Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. For convenience, all relative toxicity ratios are shown with seven decimal places, but this is not intended to convey information about precision. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; N, number of bioassays; ppb, parts per billion]

Compound	N	Median LC_{50} or EC_{50} value (ppb)	Relative toxicity ratio
Napropamide	2	19,500	0.0000043
Cycloate	2	24,000	0.0000035
2,4-DB	1	25,000	0.0000033
Metolachlor	3	25,100	0.0000033
Metalaxyl	3	29,300	0.0000028
Prometon	3	38,000	0.0000022
Atrazine	4	41,500	0.0000020
Diphenamid	2	58,000	0.0000014
Terbacil	1	65,000	0.0000013
DCPA (Dacthal)	2	82,500	0.0000010
Cyanazine	9	84,000	0.0000010
Butylate	2	85,250	0.0000010
Bensulfuron-methyl	2	99,500	0.0000008
Hexazinone	2	118,300	0.0000007
Bromacil	1	121,000	0.0000007
Metsulfuron methyl	2	150,000	0.0000006
Sulfometuron-methyl	3	150,000	0.0000006
Flumetsulam	1	254,000	0.0000003
Tebuthiuron	1	297,000	0.0000003
Dicamba	2	430,350	0.0000002
Imazethapyr	2	640,000	0.0000001

Table 8. For each pesticide, the number of bioassays, median toxicity concentration, and relative toxicity ratio within each of three taxonomic groups: cladocerans, benthic invertebrates, and fish—Continued.

[Rankings are based on the median LC_{50} or EC_{50} for that taxonomic group. Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. For convenience, all relative toxicity ratios are shown with seven decimal places, but this is not intended to convey information about precision. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; N, number of bioassays; ppb, parts per billion]

Compound	N	Median LC_{50} or EC_{50} value (ppb)	Relative toxicity ratio
Benthic invertebrates			
Permethrin	3	0.17	1.0000000
Cypermethrin	12	0.4695	0.3620873
Chlorpyrifos	31	0.57	0.2982456
Azinphos-methyl	31	1.2	0.1416667
Profenofos	3	1.8	0.0944444
Ethyl parathion	62	3.5	0.0485714
Ethion	6	4.2	0.0404762
Terbufos	17	5.6	0.0303571
3,4-Dichloroaniline	8	6.4	0.0265625
Phorate	14	6.5	0.0261538
Methyl parathion	14	9.4	0.0180851
Fenthion	17	10	0.0170000
Malathion	68	12	0.0141667
Lindane	55	12.9	0.0131783
Fenamiphos	2	15.5	0.0109677
Carbaryl	51	16	0.0106250
Carbofuran	12	16.5	0.0103030
Dieldrin	30	24	0.0070833
Diazinon	19	25	0.0068000
Disulfoton	21	27	0.0062963
Temephos	10	31	0.0054839
Dichlorvos	16	36.65	0.0046385
Phosmet	4	38.1	0.0044619
Bendiocarb	3	43	0.0039535
Picloram	3	48	0.0035417
Propoxur	13	50	0.0034000
Methiocarb	12	62	0.0027419
Tribufos	5	100	0.0017000
Propargite	1	101	0.0016832
Oxamyl	1	220	0.0007727
Methomyl	22	240	0.0007083
Methidathion	1	280	0.0006071
Oryzalin	2	295	0.0005763
2,6-Dinitro-2-methylphenol	3	320	0.0005313
2-(2,4,5-Trichlorophenoxy) propionic acid	1	340	0.0005000
alpha-HCH	1	500	0.0003400
Diuron	8	950	0.0001789
Thiobencarb	8	1,000	0.0001700

Table 8. For each pesticide, the number of bioassays, median toxicity concentration, and relative toxicity ratio within each of three taxonomic groups: cladocerans, benthic invertebrates, and fish—Continued.

[Rankings are based on the median LC_{50} or EC_{50} for that taxonomic group. Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. For convenience, all relative toxicity ratios are shown with seven decimal places, but this is not intended to convey information about precision. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; N, number of bioassays; ppb, parts per billion]

Compound	N	Median LC_{50} or EC_{50} value (ppb)	Relative toxicity ratio
p,p′-DDE	1	1,050	0.0001619
Benfluralin	2	1,100	0.0001545
Propiconazole	11	1,200	0.0001417
Dinoseb	1	1,800	0.0000944
Dicrotophos	6	1,925	0.0000883
Cyanazine	2	2,000	0.0000850
Cycloate	4	2,600	0.0000654
Trifluralin	13	2,800	0.0000607
Dicamba	2	3,900	0.0000436
Molinate	11	4,500	0.0000378
Aldicarb	2	5,960	0.0000285
DCPA (Dacthal)	1	6,200	0.0000274
2,4-D	4	8,700	0.0000195
Atrazine	9	9,000	0.0000189
Pebulate	2	10,000	0.0000170
Dichlobenil	10	10,500	0.0000162
Butylate	4	11,000	0.0000155
Simazine	3	13,000	0.0000131
Propham	2	14,500	0.0000117
2,4-DB	3	15,000	0.0000113
Propanil	1	16,000	0.0000106
Alachlor	2	19,600	0.0000087
EPTC	6	23,000	0.0000074
Bensulfuron-methyl	1	71,000	0.0000024
Diphenamid	5	100,000	0.0000017
Sulfometuron-methyl	1	12,174,000	0.0000000

Table 8. For each pesticide, the number of bioassays, median toxicity concentration, and relative toxicity ratio within each of three taxonomic groups: cladocerans, benthic invertebrates, and fish—Continued.

[Rankings are based on the median LC_{50} or EC_{50} for that taxonomic group. Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. For convenience, all relative toxicity ratios are shown with seven decimal places, but this is not intended to convey information about precision. EC_{50}, concentration at which 50 percent of the test organisms are immobilized; LC_{50}, concentration at which 50 percent mortality occurred in test organisms; N, number of bioassays; ppb, parts per billion]

Compound	N	Median LC_{50} or EC_{50} value (ppb)	Relative toxicity ratio
Fish			
Bifenthrin	2	0.25	1.0000000
alpha-Endosulfan	3	0.33	0.7575758
Cyhalothrin	6	0.5	0.5000000
Cyfluthrin	4	0.775	0.3225806
Cypermethrin	27	3.2	0.0781250
Tefluthrin	4	3.815	0.0655308
Terbufos	30	6.15	0.0406504
Permethrin	34	6.8	0.0367647
beta-Endosulfan	2	6.85	0.0364964
Dieldrin	83	10	0.0250000
Phorate	24	10.1	0.0247525
Methidathion	12	14	0.0178571
Flumetralin	6	19.9	0.0125628
Fonofos	16	20	0.0125000
Profenofos	16	22.25	0.0112360
Azinphos-methyl	107	22.8	0.0109649
Chlorpyrifos	53	38	0.0065789
Chlorothalonil	25	51	0.0049020
Lindane	116	68	0.0036765
Fipronil	5	83	0.0030120
Tebupirimphos	3	89	0.0028090
Trifluralin	28	95.5	0.0026178
p,p′-DDE	3	96	0.0026042
Dinoseb	42	96.5	0.0025907
Fenamiphos	10	111.55	0.0022411
Ethalfluralin	6	119	0.0021008
Propargite	6	130.5	0.0019157
Malathion	146	200	0.0012500
Ethion	15	210	0.0011905
Propachlor	4	255	0.0009804
Sulfotepp (Dithion)	6	269	0.0009294
Paraoxon-ethyl	2	290	0.0008621
Carbofuran	48	380	0.0006579
Oxyfluorfen	3	400	0.0006250
Benfluralin	7	420	0.0005952
Phosmet	101	480	0.0005208
Methiocarb	12	538	0.0004647
Aldicarb	14	560	0.0004464
Diazinon	79	602	0.0004153
Tribufos	26	745	0.0003356
Thiobencarb	41	910	0.0002747

Table 8. For each pesticide, the number of bioassays, median toxicity concentration, and relative toxicity ratio within each of three taxonomic groups: cladocerans, benthic invertebrates, and fish—Continued.

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Compound	N	Median LC_{50} or EC_{50} value (ppb)	Relative toxicity ratio
Pendimethalin	12	960	0.0002604
Propetamphos	6	1,020	0.0002451
Dichlorvos	32	1,144.5	0.0002184
Methomyl	75	1,250	0.0002000
Bendiocarb	8	1,275	0.0001961
Triclopyr	19	1,300	0.0001923
Triallate	5	1,330	0.0001880
Acetochlor	8	1,400	0.0001786
Ethyl parathion	60	1,400	0.0001786
Dichlorprop (2,4-DP)	18	1,450	0.0001724
alpha-HCH	1	1,490	0.0001678
Fenthion	52	1,635	0.0001529
2,6-Dinitro-2-methylphenol	8	1,720	0.0001453
Disulfoton	35	1,850	0.0001351
Ethoprop	13	2,070	0.0001208
Isofenphos	9	2,100	0.0001190
4-Chloro-2-methylphenol	1	2,300	0.0001087
Oryzalin	3	3,260	0.0000767
Myclobutanil	2	3,300	0.0000758
Napthol	7	3,570	0.0000700
Iprodione	6	3,950	0.0000633
Alachlor	25	4,200	0.0000595
Prometryne	8	4,250	0.0000588
Carbaryl	165	4,330	0.0000577
Chlorimuron-ethyl	2	5,200	0.0000481
Methyl parathion	81	5,360	0.0000466
Diuron	30	5,400	0.0000463
Propiconazole	27	5,500	0.0000455
Cycloate	11	6,000	0.0000417
Linuron	8	6,100	0.0000410
Butylate	14	6,200	0.0000403
Dimethomorph	1	6,200	0.0000403
Oxamyl	14	6,415	0.0000390
Propanil	6	6,450	0.0000388
Temephos	92	6,750	0.0000370
Propoxur	34	6,970	0.0000359
Terbuthylazine	7	7,000	0.0000357
2,4-DB	9	7,500	0.0000333
Dicrotophos	5	7,660	0.0000326
3,4-Dichloroaniline	13	7,700	0.0000325

Table 8. For each pesticide, the number of bioassays, median toxicity concentration, and relative toxicity ratio within each of three taxonomic groups: cladocerans, benthic invertebrates, and fish—Continued.

[Rankings are based on the median LC_{50} or EC_{50} for that taxonomic group. Median values are reported with the same significant figures as in the ECOTOX database unless calculated as an average of two middle values, in which case the actual average is shown with all figures. For convenience, all relative toxicity ratios are shown with seven decimal places, but this is not intended to convey information about precision. EC_{50}, concentration at which 50 percent of test organisms exhibited a sublethal response (an effect on behavior, such as immobilization); LC_{50}, concentration at which 50 percent mortality occurred in test organisms; N, number of bioassays; ppb, parts per billion]

Compound	N	Median LC_{50} or EC_{50} value (ppb)	Relative toxicity ratio
MCPB	2	7,900	0.0000316
Pebulate	3	7,900	0.0000316
Metolachlor	8	8,200	0.0000305
Picloram	55	8,600	0.0000291
Dichlobenil	20	8,850	0.0000282
Norflurazon	3	9,580	0.0000261
Napropamide	6	12,650	0.0000198
Siduron	3	13,000	0.0000192
Bromoxynil	7	13,800	0.0000181
2-(2,4,5-Trichlorophenoxy) propionic acid	11	14,000	0.0000179
Molinate	31	14,000	0.0000179
Sulprofos	5	14,000	0.0000179
Atrazine	33	15,000	0.0000167
2,4,5-T	12	15,500	0.0000161
Cyanazine	16	16,850	0.0000148
DCPA (Dacthal)	2	18,300	0.0000137
Prometon	13	19,600	0.0000128
EPTC	13	20,720	0.0000121
Propham	4	33,500	0.0000075
Fluometuron	26	36,500	0.0000068
2,4-D	43	44,500	0.0000056
Aldicarb sulfone	2	47,500	0.0000053
Simazine	32	56,000	0.0000045
Diphenamid	8	59,150	0.0000042
MCPA	6	75,000	0.0000033
Sulfometuron-methyl	4	80,250	0.0000031
Metribuzin	10	80,885	0.0000031
Terbacil	6	90,950	0.0000027
Metalaxyl	9	100,000	0.0000025
Tebuthiuron	2	124,500	0.0000020
Bromacil	5	127,000	0.0000020
Dicamba	8	135,350	0.0000018
Bensulfuron-methyl	7	150,000	0.0000017
Metsulfuron methyl	6	150,000	0.0000017
Pronamide	3	150,000	0.0000017
Fenuron	1	204,000	0.0000012
Flumetsulam	3	300,000	0.0000008
Hexazinone	25	317,000	0.0000008
Imazethapyr	6	332,000	0.0000008
Tribenuron-methyl	2	1,000,000	0.0000003
Bentazon	2	2,426,000	0.0000001