

Subject Index

A

Abiotic loss, 412, 422
 Accelerated bioconcentration test, 573–584
 Acid-mine waste, 189–202, 273–289
 Acid rain
 and Atlantic salmon, 251–258
 Novia Scotia, 251–254
 Acton Lake, Ohio, 47, 48(illus)
 Adaptation
 bacteria, 59–68
 microorganisms, 56
 Aerobic/anaerobic conditions, lakes, 72–81
Alcaligenes plasmids, 61–62, 64
 Alcohols
 and octanol/water partition coefficient, 470–488
 QSAR model, 470–488
 tadpole narcosis, 470–488, 472–473(table)
 Algae
 Champia parvula, 161–172
 in standardized aquatic microcosm, 353–367, 368–393
 biovolume, 382
 and toxicity of
 chromium, 537–547
 silver, 5–17, 13(table)
 sulfate, 537–547
 wastewater, 161–172
 Amelia River, Florida, 160, 161(illus)
 Ammonia
 toxic contaminant, wastewater, 172
 Ammunition manufacturing
 wastewater biomonitoring, 215–229
 Analysis of variance (ANOVA), 323–337
 standardized aquatic microcosm, 383–384, 388(table), 391
 Anesthesia of target organism (*see* Narcosis)
 Anesthetics
 and octanol/water partition coefficients, 470–488
 QSAR model, 475
 tadpole narcosis, 475, 476–477(table)
 Aniline derivatives
 structure-activity analysis, 492–495

Arbacia punctulata
 sperm cell test, 233, 245–248
 Aromatic amines
 structure-activity relationships, 492–495
 ASTM-PROBIT, 303–307, 308–320
 ASTM Standard E 729–80: 192
 Atlantic salmon (*see* Salmon, Atlantic)

B

Bacteria
 and adaptation to chlorobenzoate, 59–68
 plasmids, 61–62, 64
 Bass, striped
 population survival, 293–297
 Benthic invertebrates
 in Middle Atlantic Bight, 107
 polychaetes, 111–113
 and polychlorinated biphenyl uptake, 111–113
 and sewage contaminants, 103, 109–111, 178, 183–184
 stream survey, 178, 183–184
 Benzene derivatives
 Microtox analysis, 424–440, 427–431(tables)
 and octanol/water coefficients, 424–440
 toxicity prediction, 424–440
 Bioassays (*see also* Microtox)
 acute toxicity studies, 551–563
 chronic toxicity studies, 211–212
 submitochondrial electron transfer particles (SMP), 551–563
 Biochemical oxygen demand (BOD), 463–465
 Bioconcentration factor (BCF), 573–584
 Biodegradation
 organic chemicals
 butyl benzyl phthalate, 19–39, 31, 33, 34–35(tables)
 prediction of, 459–467, 462(illus)
 surfactants, 41, 47, 49–50, 52–55(tables)
 Biogeochemistry
 of silver, 5–17
 of surfactants, 41–57

Biomonitoring methods
 submitochondrial electron transfer
 particles, 551–563
 ventilatory tests on fish, 215–229
 Bloody Run Creek, New York, 60,
 61(illus)

Bluegill sunfish
 acute toxicity testing, 215–229
 use in biomonitoring, 215–229
 ventilatory behavior, 215–229

Blue mussels, 87, 91(table)

Brass dust, 354–365

Breslow test, 323–337

Butyl benzyl phthalate
 biodegradation of, 19–39, 31, 33, 34–
 35(tables)

C

Cadmium, 189–202, 209–210(tables), 210,
 567–568, 569(table)

Calcium
 wastewater contaminant, 133–135

Carbofuran, 94, 97(table), 97–100

Carbon
 and soil decontamination, 94–100

Censoring of data, 321–337

fixed right, 322

withdrawal, 322

Ceriodaphnia dubia
 chronic endpoint study, 273–287
 intrinsic rate of population increase,
 273–287
 wastewater toxicity evaluation, 141–144,
 145–147(tables), 147–152, 148–
 149(tables), 177, 179(table), 180–
 182, 184–187, 273–287, 276–
 277(tables)

Champia parvula (see *Algae*)

Chemical fractionation
 of wastewater, 123, 125–128, 126–
 127(illus), 143(illus), 144, 152–
 154, 157

Chemical shift
 substituent-induced, 422–440

Chemicals (see also individual chemicals,
 i.e., Butyl benzyl phthalate)
 bioconcentration factor (BCF), 573–589
 biodegradability of, 463–464
 butyl benzyl phthalate, 19–39, 31, 33,
 34–35(tables)
 prediction of, 459–467, 462(illus)
 surfactants, 41, 47, 49–50, 52–
 55(tables)
 endpoints, 446–447(tables), 450–453

in lake mud-water interface, 72–81, 74–
 78, 80(tables)

LC₅₀, fish, 554–555(tables)

Microtox bioassay, 554–555(tables)

monoaromatic, 410–422

no-effect concentration, 441–456, 446–
 447(tables)

priority testing of, 508–534

scoring of, 508–515

screening of, 508–534

submitochondrial electron transfer
 bioassay, 554–555(tables)

substructures of, 515–526, 528, 530–
 531(table), 533–534

wastewater fractionation and
 characterization, 123, 125–128,
 144, 152–154, 147

Chlordane

in ocean-dumped sewage sludge, 111–
 117

Chloride

wastewater contaminant, 133–135

Chlorobenzoate

bacterial adaptation to, 59–68

Chlorpyrifos, 94, 96(table), 97–100

Cholinesterase inhibitors, 397–408

Chromium, 209–210(tables), 210, 537–547

Chronic endpoints

chemicals

literature review, 442–456, 446–
 447(tables), 450–453(tables)

extrapolation from fisheries science,
 289–299

fecundity

Ceriodaphnia, 286(table), 286–287, 296

intrinsic rate of population increase,
 273–287

regression analysis of, 268–271

Coal mine waste

stream water/sediment toxicity, 204–212

Computer

programs

ASTM-PROBIT, 303–307, 308–320

COMPUTOX, 427

DULUTH-TOX, 308–320

for Latin hypercube sampling, 340–
 348

LC₅₀ estimation, 308–320

LD₅₀ estimation, 303–307

for population survival analysis, 322–
 337

for probit analysis, 303–320,
 319(table)

Random-Walk, 340–348

SAS-PROBIT, 308–320

- systems (*see also* Data bases;
Mathematical modeling;
Structure-activity relationships)
early warning biomonitoring, 217,
219(illus)
for groundwater solute transport, 340–
348
for modeling two-compartment
bioconcentration factor, 575–579
for salinity simulation, 565–568
for selecting test chemicals, 508–534
questionnaire, 514
- COMPUTOX, 427
- Contaminant exposure field, 89–93
- Contaminant mass loading, 109–110,
110(table)
- Copper
in acid-mine discharge
fish exposure, 189–202, 209–
210(tables), 210
standardized aquatic microcosm toxicity
evaluation, 354–365, 368–393
- Currents, Long Island Sound
and dredged material plume, 85–86, 89
- Cyprinodon variegatus*
pulp plant wastewater toxicity, 161–172
- D**
- Daphnia magna*
in standardized aquatic microcosms,
355–367, 368–393
structure-activity data base, 397–408
wastewater toxicity evaluation, 124–125,
125(illus)
- Daphnia pulex*
wastewater toxicity evaluation, 177,
179(table), 180–182, 184–187
- Data analyses (*see* Analysis of variance
(ANOVA); Computer programs;
Regression analyses; Sensitivity
analyses; Structure-activity
relationships; Uncertainty
analyses)
- Data bases
aquatic lethality, 442–456
chemical screening, 507–534, 551–563
environmental monitoring, 515
toxic chemicals, 515
- Decontamination
pesticide-contaminated soil, 94–100
- 3-(3-4-Dichlorophenyl)-1-1-dimethylurea
fluorescence of phytoplankton, 236
- Diffusion equation, 85
- Discharge permit, 159
- Dispersion model
dredged material in water, 85–93
- DNA:DNA colony hybridization, 59–68
- Dodecyltrimethyl ammonium chloride,
52–53, 56–57
- DULUTH-TOX, 308–320
- Dyes
water contaminants, 175
- E**
- Early warning systems
biological versus chemical/physical
systems, 216, 229
computer interface, 217, 219(illus)
- EC₅₀ (median effective concentration)
algae exposed to chromium, 544
interspecies studies, 397–408
- Ecological effects
life-cycle toxicity tests, 263–271
mathematical analysis, 263–271
- Effluents, complex (*see also* Wastewater)
acid-mine, 189–202, 273–287
coal mine, 205, 208–212
contamination of
case studies, 129–135
metal refinishing plant, 273–287
pulp and paper mill, 159–172
sewage (*see* Sewage)
tannery, 205, 208–212
textile plants, 174–187
- Electronic parameters, 410–411, 418
- Electron transfer
submitochondrial bioassay, 551–563
- Electrophiles/pro-electrophiles
structure-activity relationships, 490–504
- Endpoints (*see* Chronic endpoints)
- Environmental monitoring (*see also*
Biomonitoring methods)
data bases, 515, 529(table)
- Estuaries
analysis, 139–157
salinity of, 564–565
laboratory simulation, 565–568,
566(illus)
silver concentrations, 5–6, 15
treatment of, 152
- Eutrophication
lakes, 72, 79–81
in standardized aquatic microcosms,
360–365
- Expert system
for predicting chemical biodegradation,
459–467, 462(illus)
users of, 461

F

- Fathead minnows (*see* Minnows, fathead)
 Fecundity (*see also* Reproduction)
Ceriodaphnia dubia, 275–287, 276–277 (tables)
 as chronic endpoints, 286 (table), 286–287, 296
 Ferric hydroxide complex, 77
 Fiducial limits
 versus LC_{50} , 312–313, 314 (table)
 Field tests
 toxicity tests on salmon/trout, 194, 195
 Fish (*see also* Bluegill sunfish; Minnows; Rainbow trout; Salmon; Silversides; Striped bass; Trout)
 biomonitoring of wastewater, 215–229
 demersal species
 chlordane uptake, 113–115
 polychlorinated biphenyl uptake, 113–115
 management of fisheries, 289
 population survival, 289–299, 323–337
 tests
 comparative, 552, 554–555 (table)
 literature review, 442–456, 448–449 (tables)
 ventilatory, 215–229
 Freshwater discharge
 municipal wastewater, 139–157

G

- Gehan test, 323–337
 Gene probes
 chlorobenzoate catabolism, 59–68
 preparation of, 61–62
 Glucose turnover
 stream microorganisms, 51 (table)
 Graphite dust, 354–365
 Groundwater solute transport
 computer model of, 340–348

H

- Halogen compounds
 structure-activity relationships, 495–499
 Hazard assessment
 aquatic lethality data base, 442–456
 and bioconcentration factor (BCF), 573–574
 chemical fate/transport modeling, 339–348
 parameters, 339

- chemical screening, 507–534, 551–563
 fish population management models, 291–299
 fish toxicity, 551–563
 framework for, 103–105, 104 (illus)
 marine dumping, 101–117
 Health risk
 Food and Drug Administration
 contaminant tolerance levels, 103–104
 marine dumping, 101–117
 Heterotrophic activity
 dodecyltrimethylammonium chloride, 52–53, 56–57
 Howesville Creek, Indiana, 42, 44 (illus)
 Hybridization, DNA (*see* DNA:DNA colony hybridization)
 Hydrocarbons
 octanol/water partition coefficients, 470–488
 QSAR model, 470–488
 tadpole narcosis, 470–488, 472–473 (table)
 Hypnotic agents
 octanol/water partition coefficients, 475
 QSAR model, 475
 tadpole narcosis, 475, 476–477 (table)
 Hypothesis testing, 267–268

I

- IGC₅₀ (median inhibitory growth concentration)
 monoaromatic chemicals, 410–422
 Illinois river, 21
 Industrial pollution, 60, 68 (*see also* Acid-mine waste; Ammunition manufacturing; Coal mine waste; Metal refinishing plant waste; Pulp and paper mill waste; Tannery waste; Textile plant waste)
 Integrated Risk Information System (IRS), 115
 Interagency Testing Committee
 chemical selection, 507–534
 Interlaboratory testing
 standardized aquatic microcosms, 368–393
 Intrinsic rate of population increase, 273–287
 equation for, 274

Invertebrates (*see also* Benthic invertebrates; *Ceriodaphnia dubia*; *Daphnia magna*; *Daphnia pulex*; Mussels; Sea urchin)
 toxicity data
 literature review, 448–449(table)
 Iron, 209–210, 210(table)

K

Ketones
 octanol/water partition coefficients, 470–488
 QSAR model, 470–488
 tadpole narcosis, 470–488, 472–473(table)

L

Laboratory versus field data, 185
 Lake Huleh, Israel, 72–77
 Lakes (*see also* Acton Lake; Linsley Pond)
 aerobic/anaerobic conditions, 72–81
 chemical life of, 72–81
 eutrophic, 72–81
 mud-water interface in, 72–81
 surfactant biodegradation, 47–50, 53–55
 Latin hypercube sampling, 339–348
 LC₅₀ (median lethal concentration)
 estimation of
 computer probit analysis of, 308–320
 versus submitochondrial electron transfer bioassay, 554–555
 LD₅₀ (median lethal dose)
 cholinesterase-inhibiting compounds
 oral dose, rat, 397–408
 estimation of
 computer probit analysis, 303–307
 Lead, 209–210(tables), 210
Lepomis macrochirus (*see* Bluegill sunfish)
 Lethality
 Ceriodaphnia dubia, 278–286
 Life-cycle toxicity tests, 268–271
 Light cycle
 laboratory simulation of, 567
 Lime
 decontamination of soil, 94–100
 Linsley Pond, Connecticut, 72–73, 77–79
 Literature review
 toxicity data
 fish/invertebrates, 442–456
 Log rank test, 323–337
 Long Island Sound, New York, 82

M

Mathematical modeling (*see also* Structure-activity relationships)
 chemical environmental exposure, 339–348
 cholinesterase-inhibitor toxicity, 397–408
 groundwater solute transport, 339–348
 interpolation of rodent toxicity, 397–408
 multicompartment bioconcentration factor, 575
 Maximum acceptable toxicant concentration (MATC), 269
Menidia beryllina
 pulp plant wastewater toxicity, 161–172
 Mesocosms
 complex effluent toxicity, 233–248
 oxygen production of, 242–243, 244(table)
 respiration of, 242(table), 242–243
 versus single-species studies, 233–248
 Metabolites, chemical
 biodegradation of, 466
 Metal refinishing plant waste, 273–287
 Metals (*see* Brass dust; Cadmium; Chromium; Copper; Iron; Lead; Nickel; Silver; Zinc)
 Metals, trace
 silver, 5–17, 209–210, 210(table)
 Microcosms (*see also* Standardized aquatic microcosm)
 freshwater
 butyl benzyl phthalate toxicity, 19–39
 complex effluent toxicity, 177, 179(tables), 181, 182
 surfactant toxicity, 42–57
 saltwater
 complex effluent toxicity, 231–248
 Microorganisms (*see also* Bacteria)
 surfactant biodegradation, 41, 50–57
 Microtox
 critique of, 552
 and toxicity of
 1,4-di-substituted benzene derivatives, 424–440, 427(table)
 wastewater, 141–144, 145–147(tables), 147–149, 148–149(tables), 177, 179(table), 180–182, 184–187
 Middle Atlantic Bight, 105–107
 Minidynamo, 575

Minnows

fathead

- anilene derivatives, 491–499
- ecotoxicity endpoint as reference value, 442–456
- effluent, complex, 133, 135(table)
- narcosis of, 491–499
- nitrobenzene derivatives, 491–499
- pesticides, 95, 96–97(tables), 97–100
- QSAR model
 - aromatic amines, 491–495
 - nitro compounds, 491–495
- wastewater toxicity, 177, 179(table), 180–182, 184–187
- water versus sediment toxicity, 205–212

sheepshead

- pulp plant wastewater toxicity, 161–172, 174–187, 205, 208–212, 231–248

Mitochondria, bovine heart

- in vitro* bioassay, 551–563

Modeling (see Mathematical modeling)

Molecular connectivity indexes (MCI), 399

Monitoring of pollution (see

Biomonitoring)

Monoaromatic chemicals, 410–422

Mud-water interface

- aerobic/nonaerobic lakes, 72–81

Mussels, 87, 91(table)

Mysidopsis bahia (see Mysids)

Mysids

- wastewater toxicity, 141–144, 145(table), 147–152, 148–149(tables), 161–172

Mytilus edulis, 87, 91(table)

N

Narcosis

- fathead minnows, 491–499
- organic chemical effects, 468–488
- structure-activity relationships, 468–488
- tadpole, 468–488, 472–474, 476–479(tables)

Narragansett Bay, Rhode Island, 233, 235(illus)

Nitro compounds

- structure-activity relationships, 392–395

No-effect concentration

chemicals

- extrapolation from literature, 441–456, 446–447(tables)
- life-cycle toxicity tests, 269

Nova Scotia, Canada, 251

O

Oceans

- sewage disposal sites, 101–117

Octanol/water partition coefficient

- of alcohols, 469–470, 472–473(table)
- of 1,4-di-substituted benzene derivatives, 426

- of hydrocarbons, 469–470, 472–473(table)

- of ketones, 469–470, 472–473(table)

- of monochromatic chemicals, 410–422

Oncorhynchus tshawytscha (see Trout, steelhead)

Organic chemicals (see also Alcohols;

- Anesthetics; Aromatic amines; Benzene derivatives; Butyl benzyl phthalate; Carbofuran; Chemicals; Chlordane; Chlorobenzoate; Chlorpyrifos; Hydrocarbons; Ketones; Pesticides; Polychlorinated biphenyls; Surfactants; Toxaphene)

- total organic carbon (TOC), 123–127

Organic matter

- sorption of chemicals, 76–77, 79–81

Overton's classic experiments, 468–469

Oxygen

- in mesocosms, 243

P

PCBs (see Polychlorinated biphenyls)

Pesticides

- soil contamination, 94–100, 96(table)

Photobacterium phosphoreum (see Microtox)

Photosynthesis/respiration ratio

- in standardized aquatic microcosm, 360–365

Phytoplankton

growth

- and silver concentration, 17

and toxicity of

- chromium, 537–547
- sewage effluents, 236, 241–242
- silver, 6–9, 10–11, 13(table), 15–17

Pimephales promelas (see Minnows, fathead)

Plasmids, bacterial, 61–62, 64

Plumes

- dredged material dispersal, 82–93

Point/nonpoint pollution

- stream, 204–212

Policy for the Development of Water
Quality-Based Toxics Control,
123

Polychaetes
 chlordan uptake, 110–113
 polychlorinated biphenyl uptake, 110–
 113

Polychlorinated biphenyls (PCBs)
 benthic invertebrate concentrations,
 110–113
 demersal fish concentrations, 113–117
 Food and Drug Administration
 tolerance levels, 113
 in plume model, 87

Probit analysis, 303–307, 308–320,
 411

Pseudomonas plasmids, 61–62, 64

Pulp and paper mill waste, 159–172

Q

QSARs (qualitative structure-activity
relationships) (*see* Structure-
activity relationships)

R

Rana temporaria
 narcosis in, 468–488, 472–473(table)
 structure-activity relationship, 468–
 488

Random-Walk
 groundwater solute transport model,
 340–348

Rat
 as predictor of environmental toxicity,
 397–408

Regression analysis
 acute/chronic toxicity endpoints, 442–
 456
 acute toxicity prediction, 434, 436–
 437(tables)
 chemical fate and transport models,
 345–348
 for EC_{50} and LD_{50} values, 345–348
 life-cycle toxicity tests, 266–271
 and molecular connectivity indexes,
 400–402
 structure-toxicity modeling, 411, 418–
 419

 and substructure keys, 400–402

Reproduction

 salmon, 251–258

Risk assessment (*see* Hazard assessment)

River die-away test, 465–466

S

Sacramento River, California, 189,
 190(illus)

Salinity
 computerized simulation of, 565–568
 constant versus fluctuating, 564–572
 laboratory apparatus for measurement,
 565–568, 566(illus)
 and silver toxicity, 7–17

Salmo gairdneri (*see* Salmon, chinook)

Salmo salar (*see* Salmon, Atlantic)

Salmon

 Atlantic

 and acid-water damage, 251–258

 reproduction of, 251–258

 steroidogenesis studies, 253, 255–258

 sublethal toxicity, 251–258

 chinook

 and metal toxicity, 189–202,

 195(table)

Salt diet

 for acid-water damaged salmon, 251–
 258

Saltwater discharge

 multiple toxicity studies, 158–172, 231–
 248

SAS-PROBIT, 303–307, 307(table), 308–
 320, 411

Screening of toxic chemicals (*see*
 Structure-activity relationships)

Sea urchin

 sperm cell test, 233, 245–248

Sediments

 butyl benzyl phthalate biodegradations,
 24–25, 31(table), 32–34, 34(table),
 36, 38–39

 chlorobenzoate catabolism, 64

 dodecyltrimethylammonium chloride
 biodegradation, 52–53(tables)

 Middle Atlantic Bight, 105–107

 silver concentration, 15

 stream, 204–212

 metal concentration, 209–210(tables),
 210–212

 solid-phase tests, 211–212

Sensitivity analyses

 chemical fate/transfer models, 343–348

Sewage

 ocean dumping, 101–117

 treatment plant effluent toxicity, 174–
 187, 205, 208–212, 231–248

Sheepshead minnow

 pulp plant wastewater toxicity, 161–
 172

- Silver
 phytoplankton toxicity, 5–17
 transport of, 5, 15
- Silversides
 pulp plant wastewater toxicity, 161–172
- Sludge
 ocean dumping, 101, 107–117
- Smith River, Virginia, 175, 176(illus)
- Soils
 pesticide contamination, 94–100
- Standardized aquatic microcosm (SAM),
 353–367, 356(illus)
 interlaboratory testing, 368–393
 photosynthesis/respiration ratio, 360–365
 protocol for, 371
- Steroidogenesis
 acid-water damaged salmon, 253, 255–258
- Streams
 point/nonpoint pollution, 204–212
 surfactant biodegradation, 42–47, 50–53
 water versus sediment biodegradation, 204–212
- Striped bass
 population survival, 293–297
- Structure-activity relationships
 assay organisms
 biochemical oxygen demand, 463–465
 fathead minnow, 491, 492
 interspecies studies, 397–408
 Microtox, 424–440
 tadpole, 468–488
Tetrahymena pyriformis, 410–422, 413–416(tables)
 chemicals
 alcohols, 468–488
 alkyl and halogen monoaromatics, 410–422; 417(table)
 aromatic amines, 492–495
 benzene derivatives, 424–440
 biodegradation of, 459–467
 cholinesterase inhibitors, 397–408
 electrophiles/proelectrophiles, 495–504
 hydrocarbons, 468–488
 ketones, 468–488
 nitro compounds, 492–495
 substructures of, 533–534
 Structure-biodegradation relationships, 459–467
- Sublethal effects
 acid-water on salmon, 251–258
 silver on algae, 10–11, 13(table)
- Submitochondrial particles
in vitro bioassay, 551–563
- Substrates, artificial, 177
- Sulfate
 toxic effects on algae, 537–547
- Sunfish, bluegill, 215–229
- Surfactants
 dodecyltrimethylammonium chloride, 41–57
 long-chain nonionic/anionic, 41–57
- Survival tests (*see also* LC₅₀; LD₅₀)
 Breslow, 323–337
 Gehan, 323–337
 log rank, 323–337
 maximum acceptable toxicant concentration, 289–299
- T**
- Tadpole
 narcosis in, 468–488, 472–473(table)
 structure-activity relationships, 468–488
- Tannery waste, 205, 208–212
- Tetrahymena pyriformis*
 structure-activity relationships, 410–422, 413–416(tables)
- Textile plant waste, 174–187
- Tissue residues
 in dermersal fish, 111–113
 in *Mytilus edulis*, 87
 in polychaetes, 111–113
- Toxaphene, 94, 96(table), 97–100
- Toxic Substances Control Act (TSCA)
 Interagency Testing Committee, 508
- Toxicity tests (*see also* Bioassays; Biomonitoring; Survival tests)
 accelerated bioconcentration, 573–584
 ASTM Standard E 729–80: 192
 bioconcentration factor (BCF), 573–589
 chemical fractionation, 123, 144
 chronic endpoints, 273–299
 interlaboratory testing, 368–393
 intrinsic rate of population increase, 263–271, 273–299
 life-cycle toxicity tests, 263–271
 maximum acceptable toxicant concentration (MATC), 269
 Microtox, 554–555(table)
 multispecies, 141–144, 145–147(tables), 147–152
 no-effect concentration, 441–456, 446–447(tables)
 Overton's classic experiments, 468–469
 single species, 124–125, 125(illus)

single species versus mesocosms, 231–248
 standardized aquatic microcosm (SAM), 353–367, 368–393
 submitochondrial electron-transfer particle bioassay, 551–563, 554–555(table)
 ventilation, fish, 215–229
 water column, 211–212, 243–244
 Trash dumping
 stream water/sediment toxicity, 204–212
 Trophic interactions
 Daphnia magna and algae, 357
 Trout, steelhead
 metals toxicity, 189–202, 195(table)
 Turbidity
 after dredged material dumping, 89

U

Uncertainty analyses
 chemical fate/transport, 643–648

V

Ventilatory tests
 fish, 215–229

W

Wastewater (*see also* Effluents, complex)
 ammunition manufacturing, 215–229
 chemical fractionation studies, 123–137, 143(illus), 144, 152–154, 157
 municipal, 139–157, 174–187, 273–287
 toxicity case studies, 129–136
 Water (*see also* Groundwater; Wastewater)
 quality objectives
 metal concentrations, 191
 Water column test, 211–212, 243–244

Y

Yellow Creek, Kentucky, 205, 206(illus)

Z

Zinc, 189–202, 209–210(tables), 210
 Zooplankton
 sewage treatment plant effluent, 236, 245