APPENDIX A

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
PORIFERA						
Anheteromeyenia						
ryderi	X		Yes		3	
Ephydatia						
fluviatilis	X		No	4		
muelleri	X		No		2	
Eunapius						
fragilis	X		Yes	4		
Heteromeyenia						
tubisperma		X	No		3	
Spongilla						
lacustris	X		No		3	
Trochospongilla						
horrida	X		No		3	
pennsylvanica	X		No		2	
BRYOZOA						
Fredericella						
sultana					2	
Hyalinella						
punctata	X		No		2	
Lophopodella						
carteri						1
Pectinatella						
magnifica		X				1
Plumatella						
casmiana		X			3	
emarginata		X		4		
repens	X			4		
Urnatella						
gracilis					3	
COELENTERATA						
Cordylophora						
lacustris					2	
Craspedacusta						
sowerbyi					2	
TURBELLARIA						
Cura						
foremanni					2	
Dugesia						
dorotocephala				4		

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
tigrina			4			
Phagocata						
gracilis					2	
NEMERTEA						
Prostoma						
graecense					3	
ANNELIDA - POLYCHAETA						
SABELLIDAE						
Manayunkia						
speciosa					3	
ANNELIDA - OLIGOCHAETA						
NAIDIDAE						
Amphichaeta						
americana					2	
Chaetogaster						
diaphanus					2	
diastrophus					2	
Dero						
digitata					2	
nivea					3	
obtusa					3	
pectinata					2	
Nais						
barbata			4			
behningi					3	
bretscheri					3	
communis			4			
elinguis			5			
pardalis			4			
simplex					3	
variabilis			5			
Ophidonais						
serpentina			4			
Pristina						
aequiseta					3	
Slavina						
appendiculata					2	
Specaria						
josinae					2	
Stylaria						
fossularis					3	
lacustris					3	
Vejdovskyella						
comata						1
intermedia			4			

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
TUBIFICIDAE						
Aulodrilus						
americanus					3	
limnobius					3	
pigueti					3	
pluriseta					3	
Bothrioneurum						
vejdovskyanum					2	
Branchiura						
sowerbyi				4		
Ilyodrilus						
templetoni					3	
Isochaetides						
curvisetosus					2	
Limnodrilus						
cervix				4		
claparedianus				4		
hoffmeisteri				5		
maumeensis				5		
udekemianus				5		
Potamothrix						
moldaviensis					3	
vejdovskyi					3	
Quistadrilus						
multisetosus				4		
Spirosperma						
carolinensis					3	
ferox					3	
multisetosus				4		
nikolskyi					2	
Tubifex						
tubifex	X			5		
ANNELIDA - HIRUDINEA						
ERPOBDELLIDAE						
Erpobdella						
parva				4		
punctata				4		
Mooreobdella						
microstoma				4		
HAEMOPIDAE						
Haemopis						
grandis					3	
marmorata					3	
GLOSSIPHONIIDAE						
Alboglossiphonia						
heteroclita					3	
Gloiobdella						
elongata				4		

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Helobdella						
stagnalis				4		
triserialis					3	
Glossiphonia						
complanata	X			4		
Placobdella						
multilineata					2	
ornata					3	
papillifera					3	
parasitica					2	
PISCICOLIDAE						
Myzobdella						
lugubris					3	
Piscicola						
punctata					3	
HYDRACARIA						
Albia						
stationis						1
Arrenurus						
kenki					2	
planus					3	
serratus					2	
Bandakia						
anisitsipalpis						0
elongata						0
Euthyas						
truncata					2	
Frontipoda						
americana					2	
Forelia						
cooki					2	
Hydrachna						
conjecta						1
crenulata						1
magnisculata						1
miliaria						1
rotunda						1
stipata						1
Hydrodromia						
despiciens					2	
Hydryphantes						
tenuabilis					3	
Hygrobates						
fluviatilis				4		
longipalpis				4		
neooctoporus					2	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Lebertia						
quinquemaculosa						1
Limnesia						
maculata					2	
undulata					2	
Neumania						
rotundra						1
Oxus						
connatus						1
Piona						
carnea						1
constricta					2	
pugilis						1
rotunda						1
Pirata						
insularis					2	
Sperchon						
crassipalpus						0
glandulosus				4		
Sperchonopsis						
verrucosa						1
Testudacarus						
minimus						1
Thyas						
barbigera					2	
bruzelii					2	
stolli					2	
Tiphys						
americanus					3	
simulans					3	
Unionicola						
formosa					3	
ARTHROPODA - CRUSTACEA						
ISOPODA						
Asellus						
attenuatus					3	
brevicaudatus				4		
communis					3	
intermedius					3	
militaris					3	
racovitzai					3	
Lirceus						
fontinalis	X				3	
lineatus						1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
AMPHIPODA						
Crangonyx						
gracilis					3	
obliquus						1
pseudogracilis	X				3	
serratus					2	
Gammarus						
fasciatus					2	
lacustris					2	
minus					2	
pseudolimnaeus		X			2	
tigrinus					2	
Hyallela						
azteca					2	
Synurella						
chamberlaini					2	
DECAPODA						
Cambarus						
acuminatus					3	
asperimanus						1
bartonii			Yes		3	
exraneus						1
diogenes			Yes	4		
floridanus					2	
longirostris					3	
longulus			No			1
Orconectes						
immunis					2	
obscurus			Yes		2	
propinquus			No		2	
rusticus					3	
virilis						1
Palaemonetes						
exilipes				4		
kadiakensis					2	
paludosus					2	
Procambarus						
acutus				4		
clarkii					3	
MYSIDACEA						
Mysis						
relicta						1

POLLUTION TOLLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
INSECTA - DIPTERA						
CHIRONOMIDAE						
Ablabesmyia						
aequifasciata				4		
americana					2	
annulata			Yes			1
aspera		X	Yes		2	
auriensis						1
basalis			Yes		2	
cinctipes			Yes		2	
hauberi			Yes			1
illinoensis						1
janta					3	
mallochi		X	No		2	
monilis		X	Yes		2	
parajanta			Yes		3	
peleensis					2	
philosphagnos			Yes		2	
rhamphe					2	
tarella					3	
Arctopelopia						
flavifrons			Yes			0
Boreochlus						
persimilis			Yes			0
Brillia						
flavifrons					2	
par		X				1
parva						0
Calopsectra						
confusa			Yes			1
dendyi			Yes		2	
gregarius				4		
neoflavella			Yes		2	
Cardiocladius						
obscura			Yes		2	
platypus			Yes			0
Chaetocladis						
atroviridis						0
ochreatus						0

POLLUTION TOLLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Chironomus						
anthracinus					3	
atrella			Yes	4		
attenuatus	X		Yes	4		
carus					3	
crassicaudatus			Yes		3	
flavus					3	
fulvipilus				4		
paganus					3	
plumosus			Yes	5		
riparius		X	No	5		
staegeri			Yes		3	
stigmaterus					3	
tentans					3	
tuxis			Yes			1
Cladotanytarsus						
viridiventris			No		2	
Clinotanypus						
caliginosus						1
pinguis		X	Yes		3	
Coelotanypus						
concinnus			No	4		
scapularis					3	
tricolor					2	
Corynoneura						
scutellata						1
taris			Yes			1
Cricotopus						
absurdus						1
bicinctus	X		No		2	
exilis						1
fugax			Yes			0
politus						1
remus			No		2	
sylvestris			No		2	
tremulus					3	
tricinctus					2	
trifasciatus					3	
Cryptochironomus						
blarina			No		2	
fulvus					3	
digitatus					3	
nais					3	
ponderosus					3	
psittacinus						1
sorex						1

POLLUTION TOLLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Cryptotendipes						
casuarius			Yes			1
darbyi					2	
emorsus			No		2	
Demeijerea						
atrimanus			Yes		2	
brachialis			No		2	
Demicryptochironomus						
vulneratus						1
Diamesa						
nivoriunda			Yes			1
spinacies			No			0
Dicrotendipes						
californicus					2	
fumidus		X	No			1
incurvus			Yes		3	
leucoscelis			Yes			1
lobus			Yes			1
modestus		X	No		3	
neomodestus					2	
nervosus		X	No		2	
Einfeldia						
austeni			No		3	
brunneipennis			No		3	
natchitocheae					3	
Endochironomus						
nigricans					3	
Epiococladius						
flavens			No			0
Eukiefferiella						
coerulescens						0
Glyptotendipes						
amplus					3	
barbipes				4		
lobiferus			No		3	
meridionalis			No	4		
paripes			No		3	
senilis						1
Goeldichironomus						
holoprasinus			No	5		
Guttipelopia						
currani			Yes			1

POLLUTION TOLLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Harnishia						
amachaerus			Yes		2	
boydi			Yes		3	
collator					3	
curtilamellata					2	
edwardsi			No		2	
galeator			No		2	
tenuicaudata					2	
viridulus			No		2	
Heterotrissocladius						
marcidus						0
Hydrobaenus						
pilipes					2	
Kiefferulus						
dux					3	
Labrundinia						
becki			Yes			0
floridana						1
johannseni			Yes		2	
neopilosella			Yes			1
pilosella			Yes		2	
virescens					2	
Larsia						
lurida					2	
Lauterborniella						
agrayloides			No			0
varipennis			Yes		3	
Leptochironomus						
nigrovittatus					2	
Macropelopia						
decedens			Yes			1
Metriocnemus						
abdomino-flavatus			Yes	4		
hamatus			Yes			0
knabi			Yes	4		
lundbecki	X					1
Micropsectra						
deflecta						1
dives			Yes		2	
dubia			No			1
nigripila					3	
polita			No			0
Microtendipes						
pedellus		X	Yes			1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Monopelopia						
boliekae						0
tillandsia			Yes	4		
Nanocladius						
alternantherae			No		2	
balticus						1
distinctus					3	
minimus						1
parvulus						1
Natarsia						
fastuosa			No			0
Nilodorum						
devineyae					2	
Nilotanypus						
americanus			Yes		3	
Nilothauma						
babyi						1
bicornis					2	
Odontomesa						
fulva			No			0
Omisus						
pica			Yes			1
Orthocladius						
annectens			Yes		2	
obumbratus			Yes			1
Pagastiella						
orophila			Yes		3	
ostansa					2	
Parachironomus						
abortivus					3	
alatus			Yes		2	
carinatus			No		3	
directus			No		2	
hirtalatus					3	
loganae			Yes			1
monochromus			No		3	
pectinatellae					3	
potamogeti						1
schneideri			Yes		3	
sublettei					2	
tenuicaudatus					2	
Paracladopelma						
nais					3	
undine			Yes			1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Paralauterborniella						
elachista			No		3	
nigrohalteralis					3	
subcincta			No		2	
Paramerina						
anomala			Yes			0
smithae			No			0
Parametriocnemus						
lundbeckii						0
Paratendipes						
albimanus	X		No			1
subaequalis					2	
thermophilus			No			0
Parochlus						
kiefferi			No			0
Pedionomus						
beckae					2	
Pentaneura						
americana					2	
carneosa					2	
comosa			No			0
flavifrons				4		
inconspicua			Yes		2	
inculta					2	
melanops				4		
ornata			Yes		2	
Phaenopsectra						
profusa					2	
Polypedilum						
angulum					1	
apicatum			No			1
aviceps						1
braseniae			Yes			1
convictum					2	
digitifer			No		2	
fallax		X	Yes		3	
halterale		X	No		3	
illinoense	X		Yes		3	
labeculosum			No			0
laetum					3	
nubeculosum					2	
obtusum			Yes			1
scalaenum	X		Yes		2	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
simulans			No		3	
sordens						1
trigonum			No		2	
tritum					3	
vibex						1
Procladius						
adumbratus			No		2	
bellus		X	No		3	
culiciformis			Yes		2	
denticulatus			No	4		
riparius			No		2	
Prodiamesa						
olivacea			Yes			0
Psectrocladius						
elatus					2	
julia					3	
niger					3	
vernalis			Yes		2	
Psectrotanypus						
dyari				4		
venustus			No			1
Pseudochironomus						
fulviventris					2	
julia					2	
richardsoni			No		2	
Psilotanypus						
bellus				4		
Rheocricotopus						
robacki					3	
Rheotanytarsus						
exiguus		X	Yes		3	
Robackia						
claviger					3	
demeijerei					3	
Sergentia						
coracina			No			0
Smittia						
aterrima			Yes			1
Stempellina						
johannseni					2	
Stenochironomus						
hilaris			No			1
macateei			No			1
Stictochironomus						
devinctus		X	Yes			0
varius			No		2	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Tanypus						
carinatus			No		3	
clavatus			No		2	
grodhausi					3	
neopunctipennis					3	
parastellatus			No			1
punctipennis		X	No	4		
stellatus		X	No		3	
Tanytarsus						
buckleyi			No		2	
dissimilis						1
gracilentus						1
neoflavellus					3	
quadratus			No		2	
recens			No		2	
Thalassomyia						
bureni			No		2	
Thienemanniella						
xena						0
Thienemannimyia						
barberi			No			0
senata			Yes			0
Tribelos						
fuscicornis			Yes			1
jucundus		X	Yes			1
Trichocladius						
robacki						1
Xenochironomus						
rogersi			Yes			1
scopula		X	No		2	
taenionotus					2	
xenolabis		X	No		2	
Zavrelimyia						
carneosa						0
OTHER DIPTERA						
Anopheles						
crucians					3	
punctipennis					2	
Antocha						
saxicola			No			1
Atherix						
variegata		X			2	
Bezzia						
glabra				4		

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Blepharicera						
tenuipes						0
Brachydeutera						
argentata				4		
Cnephia						
dacotensis						0
mutata					2	
pecuarum					2	
Chaoborus						
albatus					3	
americanus					2	
flavicans					2	
punctipennis					3	
Culex						
attratus					3	
erraticus					3	
pipiens				4		
restuans					3	
Eristalis						
aeneus				5		
bastardii				5		
brousii				5		
Mansonia						
titillans					3	
Metasyrphus						
americanus				4		
Odontomyia						
cincta					3	
Palpomyia						
tibialis					3	
Prosimulium						
fuscum					3	
gibsoni					3	
johannseni						1
magnum						1
mixtum					3	
mysticum						1
rhizophorum						1
Protoplasa						
fitchii					3	
Pseudolimnophila						
luteipennis						1
Psychoda						
alternata			Yes	5		

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Simulium						
aurium				4		
clarkei					2	
corbis						1
croxtoni						1
decorum					2	
euryadminiculum						1
fibrinflatum					3	
jenningsi					2	
johannseni						0
latipes						1
luggeri					3	
meridionale						1
pictipes					2	
rugglesi					3	
tuberosum					2	
venustum					2	
verecundum					3	
vittatum					3	
Sphaeromais						
longipennis					3	
Stegopterna						
mutata					3	
Stilobezzia						
antennalis				4		
Stratiomys						
discalis				4		
meigenii				4		
Tabanus						
atratus					3	
benedictus				4		
giganteus						1
lineola				4		
stygius					2	
variegatus						1
Telmatoscopus						
albipunctatus				4		
Tipula						
abdominalis	X		Yes			1
caloptera						1
Toxorhynchites						
rutilus					3	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
INSECTA - TRICOPTERA						
Agarodes						
distinctum					2	
Agrypnia						
vestita						1
Amiocentrus						
aspilus			No			0
Anisocentropus						
pyraloides			Yes			0
Apatania						
incerta						0
Aphropsyche						
doringa						0
Arctopsyche						
grandis		X				1
irrorata			Yes			0
ladogensis						0
Asynarchus						
montanus					3	
Brachycentrus						
americanus			No			1
incanus						0
lateralis			No			0
numerosus						1
occidentalis						1
Ceraclea						
ancylus					2	
cancellata						0
diluta						1
flava			No			1
maculata						1
neffi						1
nepha					2	
punctata						0
slossonae					2	
tarsipunctata			No			1
transversa		X				1
Ceratopsyche						
alhedra					2	
alternans					2	
bronta					3	
bifida					3	
morosa						1
slossonae					2	
sparna						1
walkeri						1
vexa					2	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Chimarra						
atterrima		X	Yes			1
feria						1
obscura					2	
perigua						1
socia						0
Culophila						
thoracica						0
Cyrnellus						
fraternus		X	No		3	
Diplectrona						
metaqui						0
modesta			Yes			1
Dolophilodes						
distinctus						0
Fattigia						
pele			Yes			1
Frenesia						
missa						0
Glyphopsyche						
irrorata						1
Goera						
calcarata						0
fuscula						0
stylata						0
Helicopsyche						
borealis		X	No		2	
Hesperophylax						
designatus					2	
Heteroplectron						
americanum						0
Hydatophylax						
argus						1
Hydropsyche						
aerata					2	
arinale					3	
betteni	X		Yes		3	
bidens					2	
cuanis					3	
demora					3	
depravata					3	
dicantha						1
frisoni		X	No		3	
incommoda					2	
leonardi						0

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
orris		X	No		3	
phalerata						1
placoda					2	
scalaris						1
simulans		X	No		2	
venularis						1
Hydroptilia						
waubesiana					2	
Ironoquia						
punctatissima					2	
Leptocerus						
americanus						1
Leuchotrichia						
pictipes						1
Limnephilus						
rhombicus			No			1
submonilifer			No			1
Lype						
diversa			Yes			1
Macronemum						
carolina		X				0
zebratum					2	
Matrioptila						
jeanae						0
Micrasema						
kluane						1
rusticum						1
wataga						1
Molanna						
blenda			Yes			1
Mystacides						
sepulchralis	X		No			1
Nectopsyche						
albida						1
dorsalis					2	
exquisita						0
pavida					2	
Nemotaulius						
hostilis					2	
Neureclipsis						
crepuscularis		X	Yes			1
Oligostomis						
ocelligera						1
Onocosmoecus						
quadrinotatus						1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Oropsyche howellae						0
Palaeagapetus celsus						0
Parapsyche apicalis						0
Phylocentropus placidus		X	Yes		2	
Potamyia flava		X	Yes		3	
Pseudogoera singularis						0
Pseudostenophylax uniformis						0
Psilotreta indecisa						0
Psychoglypha subborealis						0
Psychomyia flavida						1
Pycnopsyche gentilis			Yes		2	
guttifer	X		Yes		2	
lepida	X				2	
Rhyacophila acutilaba						0
amicis			Yes			0
atrata			Yes			0
brunnea						0
carolina			Yes		2	
carpenteri						0
fuscula						1
glaberrima			Yes		3	
invaria			Yes			1
ledra						1
lobifera					2	
melita						0
mycta						0
nigrita			Yes		2	
torva			Yes		2	
vibox						1
vulphipes						1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Symphitopsyche						
bifida	X		No		3	
bronta					2	
macleodi						0
morosa					2	
riola					2	
sparna			Yes		3	
Trentonius						
distinctus					2	
Wormaldia						
moestus						0
INSECTA - EPHEMEROPTERA						
Ameletus						
lineatus						0
Ametropus						
albrighti						0
Arthroplea						
bipunctata			No			1
Attenella						
attenuata					2	
Baetis						
australis						0
bicaudatus			No			0
brunneicolor					2	
flavistriga					2	
frondalis					3	
hageni					3	
intercalaris					3	
longipalpus					3	
macdunnoughi					3	
propinquus					3	
pygmaeus					2	
spiethi			Yes			0
tricaudatus			No		2	
vagans			No		2	
Baetisca						
bajkovi			No		2	
carolina						0
escambiensis			No			0
gibbera			Yes			0
lacustris					3	
laurentina					2	
obesa			Yes			1
rogersi			Yes			0

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Brachycercus						
lacustris	X					1
maculatus			Yes		2	
Caenis						
amica					3	
anceps						0
diminuta			Yes	4		
forcipata						1
hilaris			Yes			1
latipennis						0
simulans			No			1
Callibaetis						
coloradensis			No			0
floridanus			Yes	4		
pretiosus			No			0
Centroptilum						
viridocularis						0
Choroterpes						
basalis						1
hubbelli						1
Cloeon						
alamance						1
rubropictum			No			0
Dannella						
lita					2	
simplex						1
Dolania						
americana		X	Yes			0
Drunella						
cornutella						0
Epeorus						
albertae					2	
longimanus			No			1
vitreus			No			1
Ephemera						
blanda					2	
guttulata						1
simulans		X	No			1
varia						0
Ephemerella						
allegheniensis						0
aestiva						0
attenuata						0
aurivilli						0
berneri						0
bicolor	X		No		2	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
carolina					2	
catawba					2	
coloradensis			No			1
cornuta						1
coxalis						0
crenula						0
deficiens		X	No		3	
doddsi			No			1
dorothea						1
excrucians						1
flavilinea			No			0
frisoni						0
funeralis						1
grandis						0
hecuba			No		2	
inermis			No			0
invaria						1
lita	X					0
longicornis						0
needhami			No			1
rotunda						1
septentrionalis						0
serrata						1
serratoides						0
simplex		X	Yes			1
spiculosa						0
subvaria			No			1
temporalis					2	
teresa			No		3	
tibialis			No		2	
trilineata			Yes			1
versimilis						1
walkeri						1
wayah						0
Ephoron						
album			No			1
Eurylophella						
aestiva					3	
bicolor						1
funeralis						0
lutulenta					3	
temporalis					3	
Habrophlebia						
vibrans						0
Habrophlebiodes						
americana	X				2	
brunneipennis						1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Heptagenia						
criddlei			No		2	
diabasia					2	
flavescens					2	
hebe			No		2	
lucidipennis					2	
maculipennis					2	
pulla			No			0
Heterocloeon						
curiosum						1
Hexagenia						
atrocaudata		X	No			0
bilineata			No		2	
limbata		X	No			1
munda			No		2	
rigida			No		2	
Homoeoneuria						
dolani	X					0
Isonychia						
bicolor					2	
pictipes						1
sadleri			No			0
Leptophlebia						
bradleyi			Yes			0
cupida			No			0
intermedia			Yes		2	
nebulosa			No	4		
nervosa					2	
Leucocuta						
hebe						1
Litobrancha						
recurvata					3	
Neoephemera						
purpurea						0
youngi		X	Yes			1
Nixe						
lucidipennis						1
Paraleptophlebia						
bicornuta			Yes		2	
bradleyi					3	
debilis			No			0
heteronea			No			1
mollis			No			1
praepedita			No			0
volitans			Yes		3	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Pentagenia						
vittigera		X	No		2	
Potamanthus						
distinctus						1
rufous						1
Pseudiron						
centralis					3	
Pseudocloeon						
carolina			No			1
dubium					2	
myrsum					2	
parvulum			No			1
punctiventris					2	
Rhithrogenia						
hageni			No		2	
impersonata						0
jejuna						0
pellucida						0
robusta			No			1
undulata						0
Serratella						
deficiens						1
sordida						1
Siphlonurus						
alternatus			No			0
Siphloplecton						
speciosum			Yes			0
Stenacron						
candidum						0
carolina						0
floridense			Yes			0
interpunctatum	X		Yes		2	
pallidum			No		2	
Stenonema						
annexum						0
ares			No			1
bipunctatum		X	No		2	
carlsoni						0
exiguum			Yes		3	
femoratum		X	No		3	
fuscum					2	
integrum			No		3	
ithaca						0
luteum						0
mediopunctatum						1
modestum						1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
nepotellum			No		2	
pudicum						1
pulchellum			No		2	
quinquespinum			No			1
rubromaculatum			No			1
rubrum			Yes		2	
smithae			Yes		2	
terminatum			No		2	
tripunctatum		X	No		3	
vicarium	X		No			1
Tortopus						
incertus						1
Tricorythodes						
albilineatus			Yes			1
minutus			No		2	
INSECTA - PLECOPTERA						
Acroneuria						
abnormis		X	Yes		2	
arida			No			1
carolinensis						1
evoluta		X	No			1
georgiana						0
internata		X	No		2	
lycorias			Yes			1
perplexa					2	
ruralis	X		No			1
xanthenes						1
Agnetina						
capitata						1
Allocapnia						
granulata			No			0
nivicola			No			0
recta			No			0
rickeri			No			0
vivipara			No			1
Amphinemura						
delosa			Yes		2	
linda						0
Atoperla						
ephyre						0
Attaneuria						
ruralis						1
Brachyptera						
fasciata						1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Clioperla						
clio						1
Diploperla						
duplicata			No			0
Eccoptura						
xanthenes						1
Hastaperla						
brevis			Yes			1
Hesperoperla						
pacifica			No		2	
Hydroperla						
crosbyi			No			0
Isogenoides						
frontalis						0
olivaceus						0
Isogenus						
bilobatus						1
decisus					2	
subvarians					2	
Isoperla						
bilineata			No		2	
clio			No			1
cotta						1
decepta			No			0
dicala						1
frisoni			Yes			1
fulva			No		2	
holochlora					2	
lata						1
marlynia			No			1
mohri			No			0
namata					2	
nana			No		2	
orata			No			1
richardsoni			No			1
signata			No			1
similis					2	
slossonae						1
transmarina			Yes			1
Leuctra						
ferruginea						0
sibleyi						0
tenella						0
tenuis						0
Nemocapnia						
carolina		X				0

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Nemoura						
trispinosa						1
Neoperla						
clymene		X	No			1
stewarti						1
Oemopteryx						
glacialis						1
Paracapnia						
angulata						1
Paragnetina						
immarginata		X	No			1
media		X	No			1
Perlesta						
frisoni						1
placida			No		2	
Perlinella						
drymo		X				1
ephyre						1
Phasganophora						
capitata		X	No			1
Prostoia						
completa						1
similis						1
Shipsa						
rotunda						1
Soyedina						
vallicularia						0
Strophopteryx						
fasciata			No			1
Sweltsa						
mediana			Yes			0
Taeniopteryx						
burksi			No		2	
maura			Yes		2	
metequi					2	
nivalis		X	No			1
parvula						1
Zapada						
cinctipes			No			1
Zealeuctra						
claasseni			No			0

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
INSECTA - ODONATA						
Aeshna						
umbrosa			No		2	
Amphiagrion						
saucium				5		
Anax						
junius			No		3	
Argia						
apicalis			No		3	
moesta	X		No	4		
translata			No		2	
Basiaeschna						
janata					3	
Boyeria						
grafiana					3	
vinosa	X		Yes		2	
Calopteryx						
aequabilis					3	
maculata					3	
Cannacria						
gravida					2	
Chromagrion						
conditum					2	
Coenagrion						
resolutum				4		
Cordulegaster						
erroneus					2	
fasciatus						1
maculatus					2	
sayi						0
Dromogomphus						
spinosus	X		No		2	
spoliatus			No			1
Didymops						
transversa					2	
Enallagma						
antennatum			No		3	
civile				4		
ebrium				4		
hageni				4		
signatum			Yes		2	
Epitheca						
cynosura					2	
princeps					2	
semiaquea						1

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Erythrodiplax						
berenice					2	
connata					2	
Gomphus						
externus			No		2	
pallidus					2	
plagiatus			No		2	
spiniceps			No		2	
vastus			No		2	
Hagenius						
brevistylus						1
Hetaerina						
americana					3	
titia			No			0
Hylogomphus						
brevis					2	
Ischnura						
posita			No		3	
verticalis			No	4		
Lanthus						
albistylus			No			1
parvulus					3	
Leucorrhinia						
intacta				4		
Libellula						
deplanata					2	
lydia					2	
pulchella				4		
Macromia						
georgiana						1
illinoiensis						1
taeniolata					2	
Neurocordulia						
molesta					2	
obsoleta			No			1
yamaskanensis						0
Pachydiplax						
longipennis			No		3	
Plathemis						
lydia				4		
Progomphus						
obscurus			No		3	
Stylogomphus						
albistylus						0

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
INSECTA - NEUROPTERA						
Climacia						
areolaris		X	No			1
INSECTA - MEGALOPTERA						
Chauliodes						
pectinicornis					2	
rastricornis					2	
Corydalus						
cornutus		X	Yes		3	
Nigronia						
fasciatus						0
serricornis						1
Sialis						
infumata	X		Yes	4		
INSECTA - HEMIPTERA						
Belostoma						
fluminea	X		Yes	4		
Benacus						
griseus					2	
Callicorixa						
audeni			Yes		2	
Hydrometra						
martini				4		
Limnogonus						
hesione		X	No		3	
Merragata						
hebroides					3	
Mesovelia						
mulsanti					3	
Nepa						
apiculata						1
Rhagovelia						
obesa	X				3	
INSECTA - COLEOPTERA						
Anchytarsus						
bicolor						1
Ancyronyx						
variegatus			Yes		2	
Anodocheilus						
exiguus					2	
Bidessus						
fuscatus					2	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Copelatus glyphicus					2	
Cybister fimbriolatus					3	
Derallus altus					2	
Dibolocelus ovatus					3	
Dineutus americanus				4		
Dubiraphia bivittata				4		
minima					3	
quadrinotata	X		Yes		3	
vittata	X				2	
Dytiscus hybridus					2	
Ectopria nervosa		X				0
Gonielmis dietrichi					2	
Graphoderus liberus					2	
Gyrinus floridensis				4		
Haliplus fasciatus					3	
Helichus lithophilus					3	
striatus					3	
Helochares maculicollis					2	
Hoperius planatus						1
Hydrochara obtusata						1
Hydrophilus triangularis						1
Hyogrotus farctus					2	
Laccobius agilis					2	
Laccophilus maculosus				4		
Laccornis difformis					2	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Macronychus glabratus	X		Yes		2	
Matus ovatus					2	
Microcylloepus pusillus						1
Optioservus fastiditus					2	
Optioservus ovalis			No		2	
Optioservus trivittatus						1
Oulimnius latiusculus						0
Pelonomus obscurus					2	
Peltodytes muticus					3	
Peltodytes sexmaculatus					3	
Promoresia elegans						0
Promoresia tardella						0
Psephenus herricki		X	No			1
Ptilodactyla augustata						0
Ptilodactyla serricollis						0
Sperchopsis tesselatus					2	
Stenelmis crenata		X	Yes			1
Stenelmis decorata		X	No	4		
Stenelmis sexlineata		X	No		3	
Tropisternus dorsalis					3	
Tropisternus lateralis				4		
Tropisternus natator				4		
MOLLUSCA - GASTROPODA						
Amnicola emarginata						1
Amnicola limosa			No			1
Aplexa hypnorum			No		2	
Bithynia tentaculata				4		

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Tolerance to Organic Wastes* Facultative	Tolerance to Organic Wastes* Intolerant
Campeloma						
decisum			Yes		3	
integrum					2	
rufum					2	
subsolidum					3	
Elimia						
livescens			No		3	
virginica			No	4		
Ferrissia						
fusca					3	
rivularis			No			1
tarda			No		3	
Fossaria						
modicella				4		
obrussa					3	
Gyraulus						
arcticus					3	
Helisoma						
anceps			No		3	
trivolvis			No	4		
Lioplax						
subcarinata						1
Lymnaea						
appressa						1
humilis					3	
ovata				5		
peregrina					3	
stagnalis			No		2	
Neoplanorbis						
carinatus						1
Physa						
fontinalis					2	
halei				4		
Physella						
acuta					2	
anatina				4		
cubensis				4		
gyrina				4		
heterostropha			No	4		
integra			No	4		
Planorbis						
trivolvis				4		
Planobula						
armigera				4		

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Pleurocera						
acuta			No		2	
lewisi					2	
Pseudosuccinea						
columella					3	
Radix						
auricularia					3	
Stagnicola						
caperata					3	
catascopium				4		
palustris			No		2	
Valvata						
bicarinata			No			1
piscinalis			No		2	
sincera			No		3	
tricarinata			No	4		
Viviparus						
contectoides						1
subpurpureus						1
MOLLUSCA - BIVALVIA						
Alasmidonta						
triangulata						0
undulata					2	
Amblema						
plicata			Yes		2	
Anodonta						
cataracta						1
gibbosus					3	
grandis					2	
imbecillus					2	
implicata						1
undulata					2	
Corbicula						
manilensis					3	
Cyclonaias						
tuberculata					2	
Elliptio						
complanata					2	
congaraea						1
icterina						1
shepardiana						0
waccamawensis						0

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Eupera						
cubensis					3	
Lampsilis						
cariosa						0
luteola					2	
ochracea						0
parvus					2	
teres					2	
Lasmigona						
complanata					2	
costata					2	
Leptodea						
fragilis						0
Margaritifera						
margaritifera						0
Musculium						
partumeium			4			
securis					2	
transversum					3	
Obliquaria						
reflexa						0
Pisidium						
abditum			4			
amnicum					2	
casertanum			4			
complanatum			4			
compressum			4			
crystalense					2	
fallax					2	
henslowanum					2	
idahoense			4			
subtruncatum					2	
Proptera						
alata						1
Quadrula						
lachrymosa					2	
pustulosa					2	
rubiginosa					2	
Rangia						
cuneata					3	

POLLUTION TOLERANCE OF SELECTED MACROINVERTEBRATES (Continued)

Taxa	Heavy Metals Tolerant	Heavy Metals Sensitive	Acid Tolerant	Tolerance to Organic Wastes* Tolerant	Facultative	Intolerant
Sphaerium						
corneum					3	
lilycashense					3	
notatum				4		
rhomboideum					3	
solidula						1
sulcatum					3	
stamineum					3	
striatinum					3	
transversum				4		
Strophitus						
edentulus					2	
Truncilla						
donaciformis						1
Uniomerus						
tetralasmus						1

*Ranking from 0 to 5 with 0 being the least tolerant.

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