

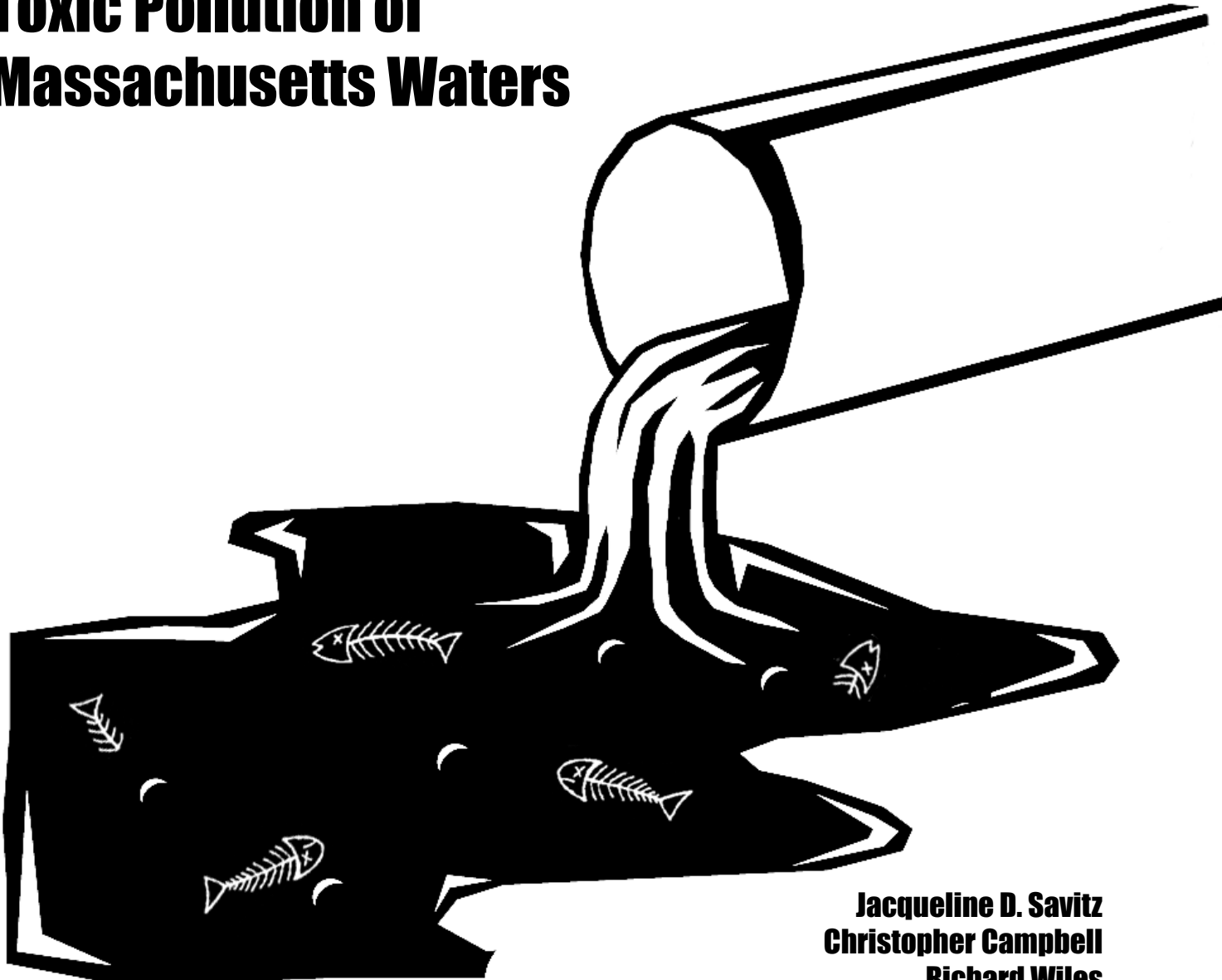


The State PIRGs



Dishonorable Discharge

Toxic Pollution of Massachusetts Waters



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Acknowledgments

We are grateful to Molly Evans who designed and produced the report and to Allison Daly who coordinated its release. Thanks to Ken Cook and Mark Childress for their editing and advice, and to Dale Klaus of U.S. PIRG who assisted with research.

Dishonorable Discharge was made possible by grants from The Joyce Foundation, the W. Alton Jones Foundation, The Pew Charitable Trusts, and Working Assets Funding Service. A computer equipment grant from the Apple Computer Corporation made our analysis possible. The opinions expressed in this report are those of the authors and do not necessarily reflect the views of The Pew Charitable Trusts or our other supporters listed above.

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Toxic Pollution of Massachusetts Waters

Executive Summary

Most Massachusetts citizens would be surprised to learn that scores of businesses and facilities across the state *legally* dump tons of toxic chemicals into the state's rivers, streams, lakes, and bays. Many of these same polluters flush millions more pounds of toxic substances down the drain to sewage treatment plants that taxpayers pay to operate and maintain. None of the toxic chemicals sent to publicly financed sewage treatment systems are reported as pollution by the EPA, even though a great deal of the toxic load eventually finds its way to Massachusetts streams and rivers.

The citizens of Massachusetts have a right to know about any pollution of their water, air or land that may pose a risk to human health or the environment. The goal of *Dishonorable Discharge* is to inform the public about the massive level of toxic pollution of the waters in their state, and point out the need for more comprehensive reporting of toxic chemical use, transport, and pollution, in Massachusetts and nationwide.

Factories and other industrial facilities dumped more than 794,000 pounds of toxic substances directly into Massachusetts waters between 1990 and 1994, according to a new analysis of the federal Toxics Release Inventory (TRI) (Table 1). Massachusetts ranked 38th among the states in toxic water pollution reported over those five years. Because of weaknesses and loopholes in federal pollution laws, most, if not all of these toxic discharges are perfectly legal.

As large as they are, these figures substantially underestimate toxic releases to waters and the environment because the TRI requires reporting of only about 340 of the 73,000 chemicals in commerce. The TRI also exempts certain industries from reporting, including utilities, sewage treatment plants, municipal incinerators, and manufacturing facilities with fewer than ten employees.

In addition, more than twenty-six million pounds of toxic materials were flushed to sewage treatment plants in Massachusetts from 1990 through 1994, 18th in the nation (Table 1.) EPA estimates that twenty-five percent of all discharges nationwide flow through sewage treatment plants untreated (EPA 1995). Applying this 25 percent estimate to Massachusetts raises the total amount of toxics dumped to the state's waters to an estimated 7.4 million pounds (Table 1).

The Muddy Cove Brook received the greatest amount of toxic water pollution in Massachusetts from 1990-1994, a total of 381,000 pounds, followed by the Boston Harbor, the Taunton River, and the Squannacook River (Table 2). The ten most polluted waterways in Massachusetts received 761,000 pounds of toxic pollution between 1990 and 1994, 95.8% percent of the total in the State.

The top three facilities reporting the most toxic pollution of Massachusetts waters over this period were Zeneca, Inc. in Dighton, which dumped 419,000 pounds of toxic chemi-

cals, followed by Northwest Airlines*, and Hollingsworth & Vose Company in the towns of East Boston, and West Groton, respectively (Table 3). The toxic chemicals dumped in the greatest amounts were ammonium sulfate solution, a total of 373,000 pounds, followed by ethylene glycol, and ammonia (Table 4).

Crane & Company Inc.* dumped the most carcinogens into Massachusetts waters, a total of 11,800 pounds, followed by AT&T and Texas Instruments Inc. (Table 8). The Housatonic River received the greatest amount of cancer-causing toxic chemicals in Massachusetts, a total of 12,000 pounds, followed by the Merrimack River and the Acushnet River (Table 7).

Revere Copper Products, Inc. dumped the greatest amount of persistent toxic metals in Massachusetts waters, a total of 3,000 pounds, followed by Texas Instruments Inc. and Zeneca Inc. (Table 8). The Acushnet River received the greatest amount of persistent toxic metals, a total of 4,000 pounds, followed by the Blackstone River and the Merrimack River (Table 7).

AT&T dumped the greatest amount of toxic chemicals that cause reproductive damage or birth defects into Massachusetts waters, a total of 3,000 pounds, followed by Rexham Graphics Inc. and Wollaston Alloys Inc. (Table 8). The Merrimack River received the greatest amount of toxic chemicals that cause reproductive damage or birth defects, a total of 3,000 pounds, followed by Buttery Brook and the Old Quincy Reservoir (Table 7).

These discharges to Massachusetts waters include only those wastes released by companies physically located in Massachusetts. Many waterways receive additional pollution from sources outside of the state. Information on toxic water pollution in other states can be found in EWG's state reports series, and in the national report, *Dishonorable Discharge*.

Recommendations

Americans have a right to know about any use, transport, or release of toxic substance in their communities that might pose a risk to human health or the environment. Required reporting under the TRI provides only a small portion of this information. Much more complete reporting is needed. Americans also have a right to know about toxic chemicals in the products they buy that may pose a risk to them and their children.

Full accounting of the use of toxic materials reveals many low cost opportunities for pollution prevention. In New Jersey, state officials estimate that every dollar spent on such materials accounting practices generates five to eight dollars in increased efficiency (GAO 1994). Without materials accounting industry will miss many opportunities for substantial low cost reductions in pollution, and the public and policy makers will be unable formulate strategies that most effectively reduce exposure to toxic substances in the environment and consumer products.

We recommend:

- Timely implementation of the EPA's proposed expansion of industries and facilities required to report toxic releases under the TRI.
- Expansion of TRI reporting requirements to include full materials accounting for any facility or industry that uses or releases a toxic substance that may pose a risk to human health and the environment.

*This facility reported no discharges in 1994, and may also have reported zero discharges for other years.

Dishonorable Discharge

Toxic pollution of rivers, lakes, streams, and bays is a serious problem in all 50 states. Twenty five years after the passage of the Clean Water Act, nearly forty (40) percent of America's rivers, lakes, and coastal waters remain unsafe for fishing, swimming or basic recreation (EPA 1996b). The pollution that fouls these waterways costs the state's economy millions of dollars in tourism, fishing, and development revenues that otherwise could be earned on or near these waters were they not so polluted (EPA 1996b).

***Dishonorable Discharge* Underestimates Toxic Pollution**

The Toxics Release Inventory (TRI) provides a rough estimate of a small portion of the toxic chemicals that flow into America's waters. The toxic discharges reported in this study are based on TRI reported toxic releases to waterways and so-called "transfers" of toxics to publicly owned treatment works (POTWs) — the term of art that industry and the EPA use when an industrial facility dumps toxic chemicals into the local sewer.

The figures reported in *Dishonorable Discharge* dramatically underestimate the total amounts of toxic compounds that have been discharged, dumped, or made their way into rivers and lakes across the country over the past five years.

About 90¹ percent of all toxic discharges coming out of pipes into water (so-called point source discharges) are not reported to the TRI. This is because the TRI requires reporting on only about 343² of some 73,000 chemicals used in commerce, and because the TRI exempts many polluters (utilities, certain industries, and those with fewer than ten employees) from reporting requirements (EPA 1996).

About half of all toxics that pollute rivers come from surface runoff and air deposition, as opposed to pipes. Comprehensive accounting of this "nonpoint source" pollution is not available for all rivers on a national basis.

Taking all of the limitations of the existing information into account, Environmental Working Group believes that an accurate estimate of the total load of toxic pollution in many rivers and lakes over the past five years might be 20 times greater than the amounts reported here.

Hiding Toxics in the Sewer

The EPA does not include so-called "transfers" of toxic chemicals to sewer systems as an official "release" of a toxic chemical into the environment (EPA 1996). At the same time, the EPA estimates that 25 percent of all toxic chemicals transferred to sewers from industrial facilities pass through treatment and into the waterways that receive wastewater (EPA 1995).

Transfers of toxic chemicals to publicly owned treatment works (POTWs) — otherwise known as sewage treatment plants — were four times greater in 1994 than the amount of toxic chemicals released directly to water that are reported in the entire TRI that year. To estimate the total amounts of toxic substances dumped into Massachusetts waters, we used EPA’s assumption that 25 percent of all toxic chemicals transferred to POTWs pass-through untreated³. Table 1 presents the EWG estimate of toxic chemicals assumed to be discharged by the POTWs in Massachusetts. Estimates of toxic discharges from POTWs to specific rivers and bodies of water could not be accurately estimated because the sewage treatment plants are not required to report to the TRI.

Assuming a 25 percent flow-through also does not permit discharge estimates for individual toxic chemicals that flow through the sewer system into waterways. In reality some chemicals flow through POTW’s untouched, while others are removed and held in the sludge, broken down in treatment, or allowed to evaporate into the ambient air as toxic pollutants.

How Toxic is Toxic?

Some 340 substances were required to be reported to the EPA for the years analyzed in this report. According to the EPA:

“For a chemical or chemical category to remain on or be added to the TRI list, it must be known to cause or reasonably be anticipated to cause one of the following:

- Significant adverse acute health effects at concentration levels that are reasonably likely to exist beyond facility boundaries as a result of continuous, or frequently recurring releases;
- In humans — cancer; teratogenic effects; or serious irreversible reproductive dysfunction, neurologic disorders, heritable genetic mutations, or other chronic health effects;
- A significant adverse effect on the environment because of its toxicity, its toxicity and persistence in the environment, or its toxicity and tendency to bioaccumulate in the environment of sufficient seriousness to warrant reporting under EPCRA section 313” (EPA 1996).

For most of the TRI chemicals, federal regulators and scientists have a disturbingly incomplete understanding of the long term toxic effects on the environment or human health. The vast majority of compounds reported in the TRI are not fully studied, even though they have triggered one of the above criteria.

Toxic discharges and runoff to water are a serious and largely unaddressed environmental and human health problem. Most, if not all of the pollution reported in Dishonorable Discharge is legal. Current pollution control laws like the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), and the Toxic Substances Control Act (TSCA) do little to move the nation towards reducing the toxic pollution cited in this report. In effect, these laws issue pollution licenses or exemptions from regulations.

One of the more glaring exemptions may be the so-called “domestic sewage exclusion” under RCRA, whereby toxic contaminants sent to sewage treatment plants escape otherwise applicable federal hazardous waste regulations. This accounts for the huge amounts of toxic chemicals that were dumped down the drain by American industry and end up in the nation’s rivers and streams. Another major source of toxic pollution of waters is agricultural pesticides. The runoff of pesticides from agricultural fields is not regulated under any federal law, and is not tabulated by the TRI nor included in this report. About 1.1 billion pounds⁴ of pesticides were used in the United States in 1993 alone (Aspelin 1994).

Dishonorable Discharge is based on data collected by the U.S. Environmental Protection Agency’s Toxics Release Inventory (TRI) for the reporting years 1990 through 1994, which includes the most recent data available. It includes the releases of only 343 chemicals from about 27,000 manufacturing facilities. The limitations of these data have been described above.

Analyzing Discharges by Body of Water

Discharges from TRI facilities were assigned to a given waterway based on the “receiving stream” reported to the EPA. Most waterways reported as “tributary” streams were included with their respective rivers in this report when it was possible to link them. For purposes of this analysis, toxic release data for major rivers themselves are tabulated separately, not summed as part of larger watersheds. For example, a “Tributary to the Mississippi River” was counted as Mississippi River, while the Missouri River was not, even though it eventually joins the Mississippi just above St. Louis. Small streams receiving large quantity discharges (such as Gravelly Run in Virginia and Clear Creek in Colorado) were reported individually, just as they are recorded in the TRI. State-level reports only include discharges to a given river from facilities that are physically located in this state, not discharges from facilities located in other states upstream.

Reporting Toxics Dumped Down the Drain

Enormous quantities of toxic chemicals are discharged to waterways via sewer systems. These so-called “transfers” of toxic chemicals to publicly owned treatment works (POTWs) totaled more than 250 million pounds in 1994, compared to 66 million pounds of direct discharges to waters reported in that same year. While the EPA does not count these transfers as environmental releases in the TRI, the Agency estimates that an average of 25 percent of these transfers flow through sewer systems into receiving waters (EPA 1995).

To better illustrate the amount of toxic chemicals that actually make it into the nation’s waters each year, we assumed that on average 25 percent of the toxic chemicals transferred to POTWs (a.k.a. sewers) by a reporting facility, ultimately pass through the sewage treatment plant untreated and in most cases are discharged to receiving waters.

Toxic chemical releases through POTWs were estimated statewide, but were not attributed to specific rivers at the state level due to the difficulty of verifying the receiving waters. Environmental Working Group will attempt to identify receiving waters more precisely future reports. All other analyses including facility discharges and top chemicals reflect direct discharges only, and not POTW release estimations.

Total discharges of persistent toxic metals, known or possible carcinogens, and chemicals known to cause reproductive effects, were calculated for specific rivers

based on information characterizing the toxic properties of these substances previously published by the EPA, the State of California, and the State of New Jersey, as well as other toxicological literature (Environmental Protection Agency, 1996; California Code of Regulations; New Jersey Department of Health; and Dixon, 1986). EPA's inclusion of known, probable, and possible carcinogens is based on determinations made by the Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP), and the International Agency for Research on Cancer (IARC) (EPA 1996). Lists of chemicals included are found in the Appendix.

Notes

¹Estimate based on EPA report (National Sediment Contaminant Point Source Inventory: Analysis of Release Data for 1992. Final Draft.) (EPA, 1995) where data from TRI were compared to the Permit Compliance System (PCS) Database and found to represent only about 9%, at most, of discharges reported in PCS. Estimates from the GAO indicate that PCS regulates only 23% of all toxic water pollution (GAO, 1994).

²The exact number of chemicals required varies with the year. In 1994, 343 chemicals were reported. EPA has recently expanded the inventory to include about 650. These data, to be reported for 1995, will be available in 1997.

³EPA uses this factor since it is unlikely to greatly overestimate or underestimate the exact treatment efficiency (EPA 1995). This number will vary for any specific chemical; however it estimates pass through for chemicals as a whole, and is not applied to specific chemicals in this report.

⁴This value refers to pesticide active ingredients. The total volume of pesticide products, including so-called inert ingredients is far higher.

Appendix

Carcinogens

1,1,2,2-Tetrachloroethane	beta-Propiolactone	Michler's ketone
1,1-Dimethylhydrazine (UDMH) (alar trans. prod.)	Bis (2-chloroethyl) ether	Mustard Gas
1,2-Dibromo-3-chloropropane (DBCP)	Bis(chloromethyl) ether	N-Nitroso-N-ethylurea
1,3-Butadiene	Bromodichloromethane	N-Nitroso-N-methylurea
1,3-Dichloropropylene	Bromoform	N-Nitrosodi-n-butylamine
1,3-Propane sultone	Cadmium	N-Nitrosodi-n-propylamine
1,4-Dioxane	Cadmium compounds	N-Nitrosodiethylamine
1-Amino-2-methylantraquinone	Captan	N-Nitrosodimethylamine
1-Naphthylamine	Carbon tetrachloride	N-Nitrosodiphenylamine
2,4,6-Trichlorophenol	Chlordane	N-Nitrosomethylvinylamine
2,4-Diaminoanisole	Chloroethane (Ethyl chloride)	N-Nitrosomorpholine
2,4-Diaminoanisole sulfate	Chloroform	N-Nitrososarcosine
2,4-Diaminotoluene	Chloromethyl methyl ether	N-Nitrosopiperidine
2,4-Dinitrotoluene	Chlorophenols	Nickel
2-Acetylaminofluorene	Chlorothalonil	Nickel compounds
2-Aminoanthraquinone	Chromium	Nitrotriacetic acid
2-Methylaziridine (Propyleneimine)	Cupferron	Nitrofen
2-Naphthylamine	D&C Red No. 19	Nitrogen mustard (Mechlorethamine)
2-Nitropropane	DDVP (Dichlorvos)	ortho-Anisidine
3,3'-Dichlorobenzidine	Di-(2-ethylhexyl)phthalate	ortho-Anisidine hydrochloride
3,3'-Dimethoxybenzidine (ortho-Dianisidine)	Dichloromethane (Methylene chloride)	ortho-Toluidine
3,3'-Dimethylbenzidine	Diepoxybutane	ortho-Toluidine hydrochloride
4,4'-Diaminodiphenyl ether (4,4'-Oxydianiline)	Diethyl sulfate	p-Aminoazobenzene
4,4'-Methylene bis(2-chloroaniline)	Dimethyl sulfate	p-Cresidine
4,4'-Methylene bis(N,N-dimethyl) benzenamine	Dimethylcarbamoyl chloride	p-Dichlorobenzene
4,4'-Methylenedianiline	Direct Black 38	p-Nitrosodiphenylamine
4,4'-Thiodianiline	Direct Blue 6	Pentachlorophenol
4-Aminobiphenyl (4-aminodiphenyl)	Direct Brown 95	Polybrominated biphenyls
4-Dimethylaminoazobenzene	Epichlorohydrin	Polychlorinated biphenyls
4-Nitrobiphenyl	Ethyl acrylate	Propylene oxide
5-Nitro-o-anisidine	Ethylene dibromide	Saccharin
Acetaldehyde	Ethylene dichloride (1,2-Dichloroethane)	Safrole
Acetamide	Ethylene oxide	Styrene
Acrylamide	Ethylene thiourea (EBDC trans prod.)	Styrene oxide
Acrylonitrile	Ethyleneimine	Tetrachloroethylene (Perchloroethylene)
Allyl chloride	Formaldehyde	Thioacetamide
Aniline	Hexachlorobenzene	Thiourea
Arsenic	Hexachloroethane	Toluene-2,4-diisocyanate
Arsenic compounds	Hexamethylphosphoramide	Toluene-2,6-diisocyanate
Asbestos	Hydrazine	Toxaphene (Polychlorinated camphenes)
Auramine	Hydrazine sulfate	Trichloroethylene
Benzene	Hydrazobenzene (1,2-Diphenylhydrazine)	Tris(2,3-dibromopropyl)phosphate
Benzidine [and its salts]	Isosafrole	Urethane (Ethyl carbamate)
Benzotrichloride	Lead	Vinyl bromide
Benzyl chloride	Lead compounds	Vinyl chloride
Beryllium and beryllium compounds	Lindane	Vinyl trichloride (1,1,2-Trichloroethane)
Beryllium compounds	Methyl iodide	

Persistent Toxic Metals

Antimony & Antimony Compounds
Arsenic & Arsenic Compounds
Barium & Barium Compounds
Beryllium & Beryllium Compounds
Cadmium & Cadmium Compounds
Chromium & Chromium Compounds
Cobalt & Cobalt Compounds
Copper & Copper Compounds
Lead & Lead Compounds
Manganese & Manganese Compounds
Mercury & Mercury Compounds
Nickel & Nickel Compounds
Selenium & Selenium Compound
Silver & Silver Compounds
Thallium & Thallium Compounds
Zinc & Zinc Compounds

Chemicals that Affect Reproduction

1,2-Dibromo-3-chloropropane
Cadmium
Carbon disulfide
Diethylhexyl phthalate
o-Dinitrobenzene
m-Dinitrobenzene
p-Dinitrobenzene
Ethylene glycol monoethyl ether
Ethylene glycol monomethyl ether
Ethylene oxide
Hexamethylphosphoramide
Lead
Styrene
Toluene
Trichloroethylene
Xylene(mixed isomers)
o-xylene
m-xylene
p-xylene
Di-n-butyl phthalate
Glycol ethers
Mercury Compounds
Mercury
Benzene
Aluminum
Arsenic
Nickel
Lindane
Vinyl Chloride

Source: Environmental Working Group. Compiled from California Proposition 65, EPA's TRI Public Data Release, New Jersey Department of Health, Hazardous Substances Fact Sheets, and Toxic Responses of the Reproductive System (Dixon 1986).

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Massachusetts

Toxic pollution of Massachusetts waters (1990-1994)

Table 1. Total reported toxic pollution of Massachusetts waters (1990-1994).

Direct Water Discharges	794,111 Pounds
Estimated Sewer Discharges‡	6,654,193 Pounds
Total Discharges to Waters	7,448,304 Pounds

Table 2. Massachusetts waters receiving the greatest amounts of toxic pollution (1990-1994).

River or Water Body	Toxic chemical release to waterbody (pounds)
Muddy Cove Brook	381,118
Boston Harbor	229,000
Taunton River	37,411
Squannacook River	26,719
Otter River	17,212
Acushnet River	15,945
Merrimack River	15,726
Chicopee River	14,827
Housatonic River	12,689
Bonny Brook	10,351

Table 3. Polluters reporting the greatest amounts of toxic chemicals discharged to Massachusetts waters (1990-1994).

Facility	City	Toxic chemical release to waters (pounds)
Zeneca Inc.	Dighton	418,526
Northwest Airlines*	East Boston	229,000
Hollingsworth & Vose Co.	West Groton	26,719
Seaman Paper Co.*	Otter River	17,212
AT&T	North Andover	15,164
Monsanto Co.	Springfield	14,807
Revere Copper Prods. Inc.	New Bedford	14,664
Crane & Co. Inc.*	Dalton	11,790
Wyman-Gordon Co.	North Grafton	11,283
Texas Instruments Inc.	Attleboro	9,543

Table 4. Toxic chemicals discharged in the greatest amounts to Massachusetts waters (1990-1994).

Chemical	Toxic chemical release to waters (pounds)
Ammonium sulfate (solution)	373,300
Ethylene glycol	237,436
Ammonia	81,491
Acetone	21,987
Methanol	15,550
Sulfuric acid	13,504
Formaldehyde	11,797
Nitric acid	10,325
Zinc compounds	4,701
Copper compounds	4,551

Table 5. Polluters reporting the greatest amounts of toxic chemicals discharged to Massachusetts sewage treatment facilities (1990-1994).

Facility	City	Toxic chemical release to sewers (pounds)
Monsanto Co.	Springfield	16,771,100
Monsanto Co.	Everett	1,108,453
Polaroid Corp.	Waltham	810,019
Malden Mills Ind. Inc.	Lawrence	760,360
Advance Coatings Co.	Westminster	517,151
Genzyme Corp.	Cambridge	468,192
Eastman Gelatine Corp.	Peabody	419,256
Chemet Corp.	Attleboro	412,566
Duralectra Inc.	Natick	383,714
Altron Inc.	Wilmington	286,511

‡ Total discharges of toxic chemicals to sewer systems in Massachusetts was 26,616,774 in 1990-94. EPA estimates that 25% of all toxic discharges to sewers pass through sewage treatment plants to receiving waters (EPA 1995).

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

Source: Environmental Working Group. Compiled from U.S. Environmental Protection Agency, Toxics Release Inventory 1990-1994.

Massachusetts

Toxic pollution of Massachusetts waters (1990-1994). Carcinogens, persistent toxic metals, and reproductive toxins

Table 6. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged into Massachusetts waters (1990-1994).**

Carcinogens	17,372 Pounds
Persistent Toxic Metals	20,603 Pounds
Reproductive Toxins	5,583 Pounds
Total (see note)	37,564 Pounds

Note: The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 6 may be larger than the total because a chemical may be in one or more categories, i.e. a chemical may be both a carcinogen and a reproductive toxin. Chemicals were counted only once for the total in Table 6.

Table 7. Massachusetts waters receiving the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** (1990-1994).**

Waters receiving the greatest amounts of carcinogenic chemicals in Massachusetts (1990-1994).**

River or Water Body	Carcinogens** released to waters (lbs.)
Housatonic River	11,790
Merrimack River	900
Acushnet River	869
Rumford River	525
Cooper's Pond	514

Waters receiving the greatest amounts of persistent toxic metals in Massachusetts (1990-1994).

River or Water Body	Persistent toxic metals released to waters (lbs.)
Acushnet River	4,025
Blackstone River	2,246
Merrimack River	1,741
Chelsea River	1,700
Muddy Cove Brook	1,688

Waters receiving the greatest amounts of reproductive toxins in Massachusetts (1990-1994).**

River or Water Body	Reproductive toxins** released to waters (lbs.)
Merrimack River	3,265
Buttery Brook	520
Old Quincy Reservoir	500
Millers River	270
Speedway Brook	261

Table 8. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Massachusetts waters (1990-1994).**

Top dischargers of carcinogenic chemicals to Massachusetts waters (1990-1994).**

Facility	City	Carcinogens** released to waters (lbs.)
Crane & Co. Inc.*	Dalton	11,790
AT&T	North Andover	900
Texas Instruments Inc.	Attleboro	873
Revere Copper Prods. Inc.	New Bedford	869
Vista Chemical Co.	Mansfield	760

Top dischargers of persistent toxic metals to Massachusetts waters (1990-1994).

Facility	City	Persistent toxic metals released to waters (lbs.)
Revere Copper Prods. Inc.	New Bedford	2,744
Texas Instruments Inc.	Attleboro	2,138
Zeneca Inc.	Dighton	1,796
Mobil Oil Corp.*	East Boston	1,700
New England Plating Co. Inc.	Worcester	1,289

Top dischargers of reproductive toxins to Massachusetts waters (1990-1994).**

Facility	City	Reproductive toxins** released to waters (lbs.)
AT&T	North Andover	3,265
Rexham Graphics Inc.	South Hadley	520
Wollaston Alloys Inc.	Braintree	500
Wyman-Gordon Co.	North Grafton	334
L. S. Starrett Co.	Athol	270

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Source: Environmental Working Group. Compiled from U.S. Environmental Protection Agency, Toxics Release Inventory 1990-1994.

The Environmental Working Group is a non-profit environmental research organization based in Washington, D.C.
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Muddy Cove Brook in Massachusetts

Total toxic pollution reported (1990-1994): 381,118 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Muddy Cove Brook in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Zeneca Inc.	Dighton	381,118

Table 2. Toxic chemicals discharged in the greatest amounts to Muddy Cove Brook in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonium sulfate (solution)	344,400
Acetone	21,700
Ammonia	13,330
Copper compounds	1,135
Chromium compounds	553

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to Muddy Cove Brook in Massachusetts (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	1,688 Pounds
Reproductive Toxins	0 Pounds
Total‡	1,688 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Muddy Cove Brook in Massachusetts (1990-1994).**

Top dischargers of carcinogens to Muddy Cove Brook in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Muddy Cove Brook in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Zeneca Inc.	Dighton	1,688

Top dischargers of reproductive toxins to Muddy Cove Brook in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

Boston Harbor in Massachusetts

Total toxic pollution reported (1990-1994): 229,000 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Boston Harbor in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Northwest Airlines*	East Boston	229,000

Table 2. Toxic chemicals discharged in the greatest amounts to Boston Harbor in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ethylene glycol	229,000

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to Boston Harbor in Massachusetts (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	0 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Boston Harbor in Massachusetts (1990-1994).**

Top dischargers of carcinogens to Boston Harbor in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Boston Harbor in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Boston Harbor in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

The Taunton River in Massachusetts

Total toxic pollution reported (1990-1994): 37,411 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Taunton River in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Zeneca Inc.	Dighton	37,408

Table 2. Toxic chemicals discharged in the greatest amounts to the Taunton River in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonium sulfate (solution)	23,800
Ammonia	13,500

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Taunton River in Massachusetts (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	111 Pounds
Reproductive Toxins	0 Pounds
Total‡	111 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Taunton River in Massachusetts (1990-1994).**

Top dischargers of carcinogens to the Taunton River in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the Taunton River in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Zeneca Inc.	Dighton	108

Top dischargers of reproductive toxins to the Taunton River in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

The Squannacook River in Massachusetts

Total toxic pollution reported (1990-1994): 26,719 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Squannacook River in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Hollingsworth & Vose Co.	West Groton	26,719

Table 2. Toxic chemicals discharged in the greatest amounts to the Squannacook River in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	26,700

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Squannacook River in Massachusetts (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	0 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Squannacook River in Massachusetts (1990-1994).**

Top dischargers of carcinogens to the Squannacook River in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the Squannacook River in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to the Squannacook River in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

The Otter River in Massachusetts

Total toxic pollution reported (1990-1994): 17,212 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Otter River in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Seaman Paper Co.*	Otter River	17,212

Table 2. Toxic chemicals discharged in the greatest amounts to the Otter River in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ethylene glycol	8,436
Ammonia	8,026
Manganese	750

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Otter River in Massachusetts (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	750 Pounds
Reproductive Toxins	0 Pounds
Total‡	750 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Otter River in Massachusetts (1990-1994).**

Top dischargers of carcinogens to the Otter River in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the Otter River in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Seaman Paper Co.*	Otter River	750

Top dischargers of reproductive toxins to the Otter River in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

The Acushnet River in Massachusetts

Total toxic pollution reported (1990-1994): 15,945 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Acushnet River in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Revere Copper Prods. Inc.	New Bedford	14,664
Aerovox Inc.	New Bedford	1,250

Table 2. Toxic chemicals discharged in the greatest amounts to the Acushnet River in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Sulfuric acid	11,920
Zinc (fume or dust)	1,250
Nickel compounds	869
Copper compounds	832
Manganese compounds	793
Zinc compounds	264

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Acushnet River in Massachusetts (1990-1994).**

Carcinogens	869 Pounds
Persistent Toxic Metals	4,025 Pounds
Reproductive Toxins	0 Pounds
Total‡	4,025 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Acushnet River in Massachusetts (1990-1994).**

Top dischargers of carcinogens to the Acushnet River in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Revere Copper Prods. Inc.	New Bedford	869

Top dischargers of persistent toxic metals to the Acushnet River in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Revere Copper Prods. Inc.	New Bedford	2,744
Aerovox Inc.	New Bedford	1,250

Top dischargers of reproductive toxins to the Acushnet River in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

The Merrimack River in Massachusetts

Total toxic pollution reported (1990-1994): 15,726 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Merrimack River in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
AT&T	North Andover	15,164
Gould Shawmut	Newburyport	371
Voltek	Lawrence	104

Table 2. Toxic chemicals discharged in the greatest amounts to the Merrimack River in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	8,185
Glycol ethers	3,250
Copper compounds	1,121
Methanol	750
1,1,1-Trichloroethane	750
Dichloromethane	750
Copper	366
Acetone	265
Lead compounds	150
Zinc compounds	104

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Merrimack River in Massachusetts (1990-1994).**

Carcinogens	900 Pounds
Persistent Toxic Metals	1,741 Pounds
Reproductive Toxins	3,265 Pounds
Total‡	5,756 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Merrimack River in Massachusetts (1990-1994).**

Top dischargers of carcinogens to the Merrimack River in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
AT&T	North Andover	900

Top dischargers of persistent toxic metals to the Merrimack River in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
AT&T	North Andover	1,269
Gould Shawmut	Newburyport	366
Voltek	Lawrence	104

Top dischargers of reproductive toxins to the Merrimack River in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)
AT&T	North Andover	3,265

The Chicopee River in Massachusetts

Total toxic pollution reported (1990-1994): 14,827 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Chicopee River in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Monsanto Co.	Springfield	14,807

Table 2. Toxic chemicals discharged in the greatest amounts to the Chicopee River in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Methanol	14,800

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Chicopee River in Massachusetts (1990-1994).**

Carcinogens	7 Pounds
Persistent Toxic Metals	20 Pounds
Reproductive Toxins	0 Pounds
Total‡	22 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Chicopee River in Massachusetts (1990-1994).**

Top dischargers of carcinogens to the Chicopee River in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the Chicopee River in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to the Chicopee River in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

The Housatonic River in Massachusetts

Total toxic pollution reported (1990-1994): 12,689 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Housatonic River in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Crane & Co. Inc.*	Dalton	11,790
General Electric Co.	Pittsfield	889

Table 2. Toxic chemicals discharged in the greatest amounts to the Housatonic River in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Formaldehyde	11,790
Zinc compounds	889

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Housatonic River in Massachusetts (1990-1994).**

Carcinogens	11,790 Pounds
Persistent Toxic Metals	889 Pounds
Reproductive Toxins	0 Pounds
Total‡	12,679 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Housatonic River in Massachusetts (1990-1994).**

Top dischargers of carcinogens to the Housatonic River in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Crane & Co. Inc.*	Dalton	11,790

Top dischargers of persistent toxic metals to the Housatonic River in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
General Electric Co.	Pittsfield	889

Top dischargers of reproductive toxins to the Housatonic River in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

Bonny Brook in Massachusetts

Total toxic pollution reported (1990-1994): 10,351 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Bonny Brook in Massachusetts (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Wyman-Gordon Co.	North Grafton	10,351

Table 2. Toxic chemicals discharged in the greatest amounts to Bonny Brook in Massachusetts (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Nitric acid	10,325

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to Bonny Brook in Massachusetts (1990-1994).**

Carcinogens	12 Pounds
Persistent Toxic Metals	26 Pounds
Reproductive Toxins	7 Pounds
Total‡	26 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Bonny Brook in Massachusetts (1990-1994).**

Top dischargers of carcinogens to Bonny Brook in Massachusetts (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Bonny Brook in Massachusetts (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Bonny Brook in Massachusetts (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)