



The State PIRGs



Dishonorable Discharge

Toxic Pollution of Washington Waters



**Jacqueline D. Savitz
Christopher Campbell
Richard Wiles
Carolyn Hartmann**

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Toxic Pollution of Washington Waters

Executive Summary

Most Washington 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 Washington streams and rivers.

The citizens of Washington 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 Washington and nationwide.

Factories and other industrial facilities dumped more than 26.5 million pounds of toxic substances directly into Washington's waters between 1990 and 1994, according to a new analysis of the federal Toxics Release Inventory (TRI) (Table 1). Washington ranked 5th 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, over three (3.5) million pounds of toxic materials were flushed to sewage treatment plants in Washington from 1990 through 1994, 34th 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 Washington raises the total amount of toxics dumped to the state's waters to an estimated 27.3 million pounds (Table 1).

Grays Harbor received the greatest amount of toxic water pollution in Washington from 1990-1994, a total of 10,800,000 pounds, followed by the Straits Of Juan De Fuca, the Columbia River, and Everett Harbor (Table 2). The ten most polluted waterways in Washington received 26,400,000 pounds of toxic pollution between 1990 and 1994, 99.7% percent of the total in the State.

The top three facilities reporting the most toxic pollution of Washington's waters over this period were Weyerhaeuser Company in Cosmopolis, which dumped 8,710,000

pounds of toxic chemicals, followed by Rayonier Inc. in Port Angeles, and ITT Rayonier Inc.* in Hoquiam (Table 3). The toxic chemicals dumped in the greatest amounts were ammonia, a total of 13,300,000 pounds, followed by sulfuric acid, and methanol (Table 4).

Weyerhaeuser Company dumped the most carcinogens into Washington's waters, a total of 685,000 pounds, followed by Longview Fibre Company and Georgia-Pacific West Inc. (Table 8). The Columbia River received the greatest amount of cancer-causing toxic chemicals in Washington, a total of 1,370,000 pounds, followed by Bellingham Bay and Grays Harbor (Table 7).

Georgia-Pacific West Inc. dumped the greatest amount of persistent toxic metals in Washington's waters, a total of 87,000 pounds, followed by ITT Rayonier Inc.* and Shell Oil Company (Table 8). Bellingham Bay received the greatest amount of persistent toxic metals, a total of 87,000 pounds, followed by Grays Harbor and Fidalgo Bay (Table 7).

Weyerhaeuser Company dumped the greatest amount of toxic chemicals that cause reproductive damage or birth defects into Washington's waters, a total of 4,000 pounds, followed by Texaco and Point Wells Richmond Beach (Table 8). The Columbia River received the greatest amount of toxic chemicals that cause reproductive damage or birth defects, a total of 4,000 pounds, followed by Fidalgo Bay and Puget Sound (Table 7).

These discharges to Washington's waters include only those wastes released by companies physically located in Washington. 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 Washington’s 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 Washington. 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)	Safrrole
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
Benzenidine [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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Washington

Toxic pollution of Washington waters (1990-1994)

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

Direct Water Discharges	26,467,892 Pounds
Estimated Sewer Discharges‡	876,931 Pounds
Total Discharges to Waters	27,344,823 Pounds

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

River or Water Body	Toxic chemical release to waterbody (pounds)
Grays Harbor	10,840,795
Straits Of Juan De Fuca	7,899,229
Columbia River	3,366,871
Everett Harbor	1,749,650
Bellingham Bay	1,104,606
Strait Of Georgia	548,520
Fidalgo Bay	406,939
Puget Sound	322,633
Snohomish River	78,855
Steamboat Slough	57,250

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

Facility	City	Toxic chemical release to waters (pounds)
Weyerhaeuser Co.	Cosmopolis	8,707,255
Rayonier Inc.	Port Angeles	7,894,420
ITT Rayonier Inc.*	Hoquiam	2,125,940
Scott Paper Co.	Everett	1,749,650
James River Paper Co.	Camas	1,413,974
Georgia-Pacific West Inc.	Bellingham	1,104,606
Weyerhaeuser Co.	Longview	1,085,988
Longview Fibre Co.	Longview	675,220
Arco	Blaine	487,084
Texaco	Anacortes	321,059

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

Chemical	Toxic chemical release to waters (pounds)
Ammonia	13,252,623
Sulfuric acid	8,620,209
Methanol	2,046,991
Chloroform	1,079,187
Formaldehyde	538,552
Acetone	234,117
Chromium compounds	174,320
Chlorine	135,722
Acetaldehyde	110,234
Methyl ethyl ketone	48,811

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

Facility	City	Toxic chemical release to sewers (pounds)
Lamb-Weston Inc.	Quincy	848,000
Darigold-Lynden	Lynden	497,389
Darigold Inc.	Sunnyside	400,294
Seh America Inc.	Vancouver	349,913
Darigold-Issaquah	Issaquah	187,749
Boeing Commercial Airplane	Everett	155,658
Darigold-Rainier	Seattle	102,164
Siemens Power Corp.	Richland	97,740
Boeing Commercial Airplane	Renton	81,573
Great Western Malting Co.	Vancouver	71,554

‡ Total discharges of toxic chemicals to sewer systems in Washington was 3,507,724 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.

Washington

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

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

Carcinogens	1,763,207 Pounds
Persistent Toxic Metals	274,419 Pounds
Reproductive Toxins	14,365 Pounds
Total (see note)	2,033,364 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. Washington waters receiving the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** (1990-1994).**

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

River or Water Body	Carcinogens** released to waters (lbs.)
Columbia River	1,367,228
Bellingham Bay	112,929
Grays Harbor	64,100
Puget Sound	62,818
Steamboat Slough	54,300

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

River or Water Body	Persistent toxic metals released to waters (lbs.)
Bellingham Bay	87,340
Grays Harbor	50,800
Fidalgo Bay	49,699
Columbia River	41,694
Straits Of Juan De Fuca	11,500

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

River or Water Body	Reproductive toxins** released to waters (lbs.)
Columbia River	4,404
Fidalgo Bay	2,555
Puget Sound	2,285
Powder Mill Creek	1,750
Strait Of Georgia	1,456

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

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

Facility	City	Carcinogens** released to waters (lbs.)
Weyerhaeuser Co.	Longview	684,815
Longview Fibre Co.	Longview	630,270
Georgia-Pacific West Inc.	Bellingham	112,929
Weyerhaeuser Co.*	Everett	62,100
Simpson Tacoma Kraft Co.	Tacoma	62,053

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

Facility	City	Persistent toxic metals released to waters (lbs.)
Georgia-Pacific West Inc.	Bellingham	87,340
ITT Rayonier Inc.*	Hoquiam	50,800
Shell Oil Co.	Anacortes	44,470
James River Paper Co.	Camas	25,100
Weyerhaeuser Co.	Longview	13,800

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

Facility	City	Reproductive toxins** released to waters (lbs.)
Weyerhaeuser Co.	Longview	4,082
Texaco	Anacortes	2,555
Point Wells Richmond Beach	Seattle	2,280
Boeing Commercial Airplane	Everett	2,015
Arco	Blaine	1,285

* 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.
Phone: (202) 667-6982 • Fax: (202) 232-2592 • Email: info@ewg.org • Web: <http://www.ewg.org>

Grays Harbor in Washington

Total toxic pollution reported (1990-1994): 10,840,795 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
Weyerhaeuser Co.	Cosmopolis	8,707,255
ITT Rayonier Inc.*	Hoquiam	2,125,940
Grays Harbor Paper L.P.	Hoquiam	7,600

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

Chemical	Toxic chemical release to waterbody (pounds)
Sulfuric acid	8,612,315
Ammonia	2,013,355
Chloroform	64,100
Methanol	51,050
Chromium compounds	50,800
Acetone	34,200
n-Butyl alcohol	14,200
Methyl ethyl ketone	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 Grays Harbor in Washington (1990-1994).**

Carcinogens	64,100 Pounds
Persistent Toxic Metals	50,800 Pounds
Reproductive Toxins	0 Pounds
Total‡	114,900 Pounds

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

Top dischargers of carcinogens to Grays Harbor in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Weyerhaeuser Co.	Cosmopolis	34,000
ITT Rayonier Inc.*	Hoquiam	30,100

Top dischargers of persistent toxic metals to Grays Harbor in Washington (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
ITT Rayonier Inc.*	Hoquiam	50,800

Top dischargers of reproductive toxins to Grays Harbor in Washington (1990-1994).**

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

The Straits Of Juan De Fuca in Washington

Total toxic pollution reported (1990-1994): 7,899,229 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Straits Of Juan De Fuca in Washington (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Rayonier Inc.	Port Angeles	7,894,420
Daishowa America Co. Ltd.	Port Angeles	4,809

Table 2. Toxic chemicals discharged in the greatest amounts to the Straits Of Juan De Fuca in Washington (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	6,252,804
Methanol	1,567,300
Acetone	32,820
Chloroform	25,480
Chromium compounds	11,500
Acrylamide	8,000
Methyl ethyl ketone	1,320

‡ 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 Straits Of Juan De Fuca in Washington (1990-1994).**

Carcinogens	33,480 Pounds
Persistent Toxic Metals	11,500 Pounds
Reproductive Toxins	0 Pounds
Total‡	44,980 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Straits Of Juan De Fuca in Washington (1990-1994).**

Top dischargers of carcinogens to the Straits Of Juan De Fuca in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Rayonier Inc.	Port Angeles	33,480

Top dischargers of persistent toxic metals to the Straits Of Juan De Fuca in Washington (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Rayonier Inc.	Port Angeles	11,500

Top dischargers of reproductive toxins to the Straits Of Juan De Fuca in Washington (1990-1994).**

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

The Columbia River in Washington

Total toxic pollution reported (1990-1994): 3,366,871 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
James River Paper Co.	Camas	1,413,974
Weyerhaeuser Co.	Longview	1,082,575
Longview Fibre Co.	Longview	675,220
Boise Cascade	Wallula	142,572
Chevron Chemical Co.*	Kennewick	16,529
Unocal Agricultural Prods.	Kennewick	13,788
Reynolds Metals Co.	Longview	9,153
Kalama Chemical Inc.	Kalama	8,185
Tree Top Inc.	Wenatchee	2,850
Boise Cascade*	Vancouver	

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

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	1,300,909
Chloroform	811,903
Formaldehyde	531,414
Methanol	306,681
Acetone	128,000
Chlorine	122,499
Methyl ethyl ketone	44,706
Chromium compounds	32,000
Phenol	25,209
Catechol	20,233

‡ 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 Columbia River in Washington (1990-1994).**

Carcinogens	1,367,228 Pounds
Persistent Toxic Metals	41,694 Pounds
Reproductive Toxins	4,404 Pounds
Total‡	1,405,147 Pounds

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

Top dischargers of carcinogens to the Columbia River in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Weyerhaeuser Co.	Longview	683,947
Longview Fibre Co.	Longview	630,270
James River Paper Co.	Camas	36,700
Boise Cascade	Wallula	14,600
Boise Cascade*	Vancouver	1,170

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

Facility	City	Persistent toxic metals released to water (lbs)
James River Paper Co.	Camas	25,100
Weyerhaeuser Co.	Longview	13,800
Reynolds Metals Co.	Longview	1,148
Kalama Chemical Inc.	Kalama	841
Vancouver Extrusion Co.	Vancouver	500

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

Facility	City	Reproductive toxins** released to water (lbs)
Weyerhaeuser Co.	Longview	3,904
James River Paper Co.	Camas	500

Everett Harbor in Washington

Total toxic pollution reported (1990-1994): 1,749,650 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
Scott Paper Co.	Everett	1,749,650

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

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	1,653,000
Chloroform	50,200
Methanol	42,000
Sulfuric acid	4,450

‡ 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 Everett Harbor in Washington (1990-1994).**

Carcinogens	50,200 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	50,200 Pounds

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

Top dischargers of carcinogens to Everett Harbor in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Scott Paper Co.	Everett	50,200

Top dischargers of persistent toxic metals to Everett Harbor in Washington (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Everett Harbor in Washington (1990-1994).**

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

Bellingham Bay in Washington

Total toxic pollution reported (1990-1994): 1,104,606 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Bellingham Bay in Washington (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Georgia-Pacific West Inc.	Bellingham	1,104,606

Table 2. Toxic chemicals discharged in the greatest amounts to Bellingham Bay in Washington (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	900,000
Acetaldehyde	91,000
Chromium compounds	75,500
Chloroform	21,900
Zinc compounds	9,680
Methanol	2,220
Sulfuric acid	1,800
Manganese compounds	1,180
Mercury	500
Mercury compounds	480

‡ 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 Bellingham Bay in Washington (1990-1994).**

Carcinogens	112,929 Pounds
Persistent Toxic Metals	87,340 Pounds
Reproductive Toxins	980 Pounds
Total‡	200,269 Pounds

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

Top dischargers of carcinogens to Bellingham Bay in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Georgia-Pacific West Inc.	Bellingham	112,929

Top dischargers of persistent toxic metals to Bellingham Bay in Washington (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Georgia-Pacific West Inc.	Bellingham	87,340

Top dischargers of reproductive toxins to Bellingham Bay in Washington (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)
Georgia-Pacific West Inc.	Bellingham	980

The Strait Of Georgia in Washington

Total toxic pollution reported (1990-1994): 548,520 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Strait Of Georgia in Washington (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Arco	Blaine	487,084
Tosco Northwest Co.	Ferndale	61,436

Table 2. Toxic chemicals discharged in the greatest amounts to the Strait Of Georgia in Washington (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	532,466
Manganese compounds	8,414
Chromium compounds	1,670
Phenol	715
Toluene	572
Ethylbenzene	557
1,2,4-Trimethylbenzene	555
Barium compounds	409
Lead compounds	352
Benzene	322

‡ 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 Strait Of Georgia in Washington (1990-1994).**

Carcinogens	1,334 Pounds
Persistent Toxic Metals	11,255 Pounds
Reproductive Toxins	1,456 Pounds
Total‡	12,711 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Strait Of Georgia in Washington (1990-1994).**

Top dischargers of carcinogens to the Strait Of Georgia in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Arco	Blaine	1,015
Tosco Northwest Co.	Ferndale	319

Top dischargers of persistent toxic metals to the Strait Of Georgia in Washington (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Tosco Northwest Co.	Ferndale	7,216
Arco	Blaine	4,039

Top dischargers of reproductive toxins to the Strait Of Georgia in Washington (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)
Arco	Blaine	1,285
Tosco Northwest Co.	Ferndale	171

Fidalgo Bay in Washington

Total toxic pollution reported (1990-1994): 406,939 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Fidalgo Bay in Washington (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Texaco	Anacortes	308,159
Shell Oil Co.	Anacortes	98,780

Table 2. Toxic chemicals discharged in the greatest amounts to Fidalgo Bay in Washington (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	353,610
Antimony compounds	43,770
Manganese compounds	2,614
Nickel compounds	1,210
Nickel	980
Manganese	700
Benzene	525
Ethylbenzene	525
Toluene	525
Xylene (mixed isomers)	525

‡ 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 Fidalgo Bay in Washington (1990-1994).**

Carcinogens	3,140 Pounds
Persistent Toxic Metals	49,699 Pounds
Reproductive Toxins	2,555 Pounds
Total‡	51,274 Pounds

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

Top dischargers of carcinogens to Fidalgo Bay in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Texaco	Anacortes	3,140

Top dischargers of persistent toxic metals to Fidalgo Bay in Washington (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Shell Oil Co.	Anacortes	44,470
Texaco	Anacortes	5,229

Top dischargers of reproductive toxins to Fidalgo Bay in Washington (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)
Texaco	Anacortes	2,555

Puget Sound in Washington

Total toxic pollution reported (1990-1994): 322,633 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Puget Sound in Washington (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Simpson Tacoma Kraft Co.	Tacoma	318,798
Point Wells Richmond Beach	Seattle	3,075
Todd Pacific Shipyards	Seattle	755

Table 2. Toxic chemicals discharged in the greatest amounts to Puget Sound in Washington (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	223,610
Chloroform	42,944
Acetone	26,916
Acetaldehyde	12,000
Formaldehyde	7,109
Catechol	5,764
Benzene	760
Toluene	760
Xylene (mixed isomers)	760
Cyclohexane	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 Puget Sound in Washington (1990-1994).**

Carcinogens	62,818 Pounds
Persistent Toxic Metals	760 Pounds
Reproductive Toxins	2,285 Pounds
Total‡	65,093 Pounds

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

Top dischargers of carcinogens to Puget Sound in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Simpson Tacoma Kraft Co.	Tacoma	62,053
Point Wells Richmond Beach	Seattle	760

Top dischargers of persistent toxic metals to Puget Sound in Washington (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Todd Pacific Shipyards	Seattle	755

Top dischargers of reproductive toxins to Puget Sound in Washington (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)
Point Wells Richmond Beach	Seattle	2,280

The Snohomish River in Washington

Total toxic pollution reported (1990-1994): 78,855 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
Weyerhaeuser Co.*	Everett	78,855

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

Chemical	Toxic chemical release to waterbody (pounds)
Methanol	69,800
Chloroform	6,000
Acetone	2,300
Catechol	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 Snohomish River in Washington (1990-1994).**

Carcinogens	6,000 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	6,000 Pounds

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

Top dischargers of carcinogens to the Snohomish River in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Weyerhaeuser Co.*	Everett	6,000

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

Facility	City	Persistent toxic metals released to water (lbs)

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

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

Steamboat Slough in Washington

Total toxic pollution reported (1990-1994): 57,250 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Steamboat Slough in Washington (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Weyerhaeuser Co.*	Everett	57,250

Table 2. Toxic chemicals discharged in the greatest amounts to Steamboat Slough in Washington (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Chloroform	54,300
Acetone	2,200
Catechol	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 Steamboat Slough in Washington (1990-1994).**

Carcinogens	54,300 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	54,300 Pounds

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

Top dischargers of carcinogens to Steamboat Slough in Washington (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Weyerhaeuser Co.*	Everett	54,300

Top dischargers of persistent toxic metals to Steamboat Slough in Washington (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Steamboat Slough in Washington (1990-1994).**

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