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May 2005

U.S. States and the Global POPs Treaty

Parallel Progress in the Fight Against Toxic Pollution

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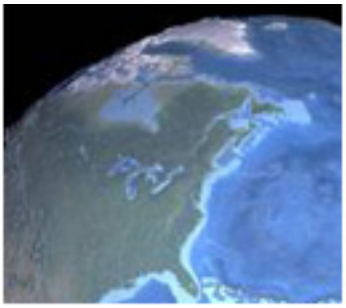
This report was prepared for the Center for International Environmental Law (CIEL) by Karen Perry Stillerman under the direction of Daryl Ditz, Coordinator of the US POPs Watch Campaign at CIEL.

Table of Contents

Executive Summary



U.S. States and the Global POPs Treaty

Every day, Americans are exposed to dangerous chemicals known as Persistent Organic Pollutants, or "POPs." Some of these toxic substances, such as dioxins, PCBs, and DDT, are part of the popular vocabulary of environmental hazards. The names of most are unfamiliar to the general public: perfluorooctanoic acid, pentabrominated diphenyl ether, and many other chemical tongue twisters. Whether you've heard of them or not, all POPs share some unfortunate characteristics. They are very slow to break down in the environment and can travel the globe by wind and water. They build up in the bodies of living organisms including people. And they jeopardize human health and complex ecological systems.

Under a new international treaty, nearly 100 countries have already begun a process of eliminating the production, use, and trade of twelve groups of POPs and have committed to expanding the list in the future. This agreement is officially known as the Stockholm Convention on Persistent Organic Pollutants, often shortened to the Stockholm Convention or, as in this report, the "POPs Treaty."

The United States signed the Stockholm Convention in 2001 with the enthusiastic support of President George W. Bush, the chemical industry, and environmental and public health advocates. But in the four years since, there has been little progress toward making the necessary changes to U.S. environmental law that will enable the United States to fully ratify and implement the treaty. As a result, the United States did not qualify for a seat at the table at the first Conference of the Parties (COP1) in Uruguay, May 2-6, 2005.

This report outlines some key features of the international movement to protect human health and the environment and reflects on some parallel developments underway *within the United States*. By spotlighting state progress on POPs, this report documents Americans' commitment to accept responsibility for POPs and to step up to the challenge. It also demonstrates how essential state and local actions can be in raising public awareness, testing policy approaches, and creating markets for safer alternatives to POPs.

To illustrate the variety of POPs efforts underway in the United States, we shine a spotlight on several approaches in three featured states. In Maine we focus on a comprehensive approach to remove mercury from products, experience in reducing dioxins emissions from industrial, institutional and backyard sources, and pioneering efforts to eliminate a class of brominated flame retardants. We highlight California's actions to limit the pesticide lindane from pharmaceutical use, to substitute safer alternatives to brominated chemicals in the electronics sector, and legislative efforts to establish a state biomonitoring program. Finally, the Washington State experience looks at mercury and brominated compounds under the state's innovative strategy on persistent, bioaccumulative and toxic chemicals (PBTs).

Stepping back from the specific findings this report draws some broader conclusions about actions on toxic chemicals within the 50 U.S. states:

- U.S. states are at the vanguard of tackling POPs.
- State progress parallels the global POPs movement.
- State actions to reduce chemical threats must be respected.
- U.S. political will is needed for global POPs success.
- People and communities across the country must be heard.

In many ways, these state and local initiatives mirror the best efforts of national governments around the world. It is even plausible to speculate that some states would readily ratify the Stockholm POPs Convention, if such an action were possible. Under the U.S. Constitution, of course, the power to make international treaties rests with the President "by and with the Advice and Consent of the Senate, provided two thirds of the Senators present concur." And so we have a situation where many countries and many of our own states are moving in parallel toward shared environmental objectives -- while the U.S. government stands frozen in place.

It doesn't have to be this way. The President and Congress can take action to return our country to a leadership position on the global POPs treaty. To date, the impasse over U.S. ratification of the Stockholm POPs treaty has hinged on obscure political and ideological arguments concerning how the U.S. will respond here at home to other POPs added to the international treaty. There is a viable middle course that would allow the U.S. to take advantage of international findings without ceding national sovereignty. This solution would provide clear legal authority for the U.S. Environmental Protection Agency to act promptly on "new" global POPs, preferably using the same health-based standard found in the treaty. It would also respect the rights of state, local and tribal governments to uphold tougher standards on POPs than the federal government. This common sense approach requires a degree of political commitment to public health protection and international cooperation that is in short supply in our nation's capital.

Just as public interest organizations around the world are working together to drive further progress on POPs, concerned Americans can take action here in the United States. U.S. POPs Watch is a joint project of CIEL and a working group comprising environmental health leaders from around the nation. The site offers timely news, resources, and tools for staying informed and making your views heard in Congress.

http://www.USPOPsWatch.org

Acknowledgments

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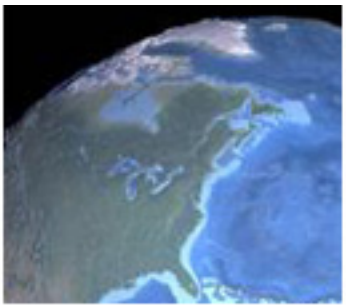
The POPs Treaty and the U.S.



POPs are exceedingly toxic chemicals that take years or decades to break down in the environment, travel long distances on wind and water currents, concentrate in the food chain, and accumulate in our bodies. They include some familiar chemicals like chlorinated dioxins, PCBs, and DDT. These substances can cause a variety of serious health effects in animals and humans. POPs used in the United States can harm people and wildlife thousands of miles away. Similarly, POPs released in foreign countries imperil Americans here at home.

WHY YOU SHOULD CARE ABOUT POPS

POPs share several important characteristics that make them particularly troubling. First, POPs are fat soluble, and are thus able to move from air, water, and soil into food chains. Animals, including livestock, ingest POPs that are deposited in the environment. These POPs accumulate in the animals' fatty tissues, contaminating meat, fish, eggs, and dairy products. The majority of Americans' exposure to POPs occurs through consumption of these foods. Recent findings have also demonstrated that common household dust carries chemical traces of conventional products, building materials, cleaners, and more.[1]

Over decades of study, various POPs have been linked to health problems including cancer, reproductive and developmental effects, and neurological deficits. Exposure even to extremely low levels of some POPs can alter the function of the endocrine system by mimicking or blocking the action of natural hormones. POPs have been implicated in adverse effects on brain function, precocious puberty, female reproductive problems including endometriosis and difficulty conceiving, and in males, declining sperm counts and malformations of the penis and testicles.

Since the route of POPs exposure are multiple and complex, it is difficult to determine how individual people may be affected by exposure to POPs. However, it seems clear that children are among the populations that are most at risk. Babies can be exposed to POPs in the womb and, later, through their mother's breast milk. Human breast milk sampling has revealed significant levels of some POPs.[2] Based on analyses of these samples, it is estimated that nursing infants have a much higher exposure to POPs, relative to body weight, than adults.

Young children are also exposed during a stage in their development that is especially sensitive to chemical contaminants. Human and animal studies have provided disturbing evidence that prenatal exposure to low levels of some POPs can result in decreases in IQ and short-term memory; delayed psychomotor development; abnormal reflexes; and speech problems.[3,4,5,6,7] Serious structural abnormalities, retarded growth, and functional

changes have also been observed in lab animals exposed to low levels of POPs during gestation.[8]

In addition, evidence has accumulated over the course of the past decade about the disproportionate burden of POPs on people and wildlife in the Arctic. This remote region appears to be a final resting place for POPs produced and used elsewhere in the world. Because of their reliance on traditional—and often highly contaminated—foods such as fish, game, and even marine mammals, native people in the far north have some of the world's highest levels of POPs in their bodies. As a result, Alaska Natives and other indigenous people across the country have taken a strong interest in POPs and many individuals, tribes and organizations played a important role in the Stockholm Convention negotiations. In 2001, the National Congress of American Indians and over 31 tribes passed resolutions in support of the POPs treaty.[9]

Communities located near industrial sites also face potentially high exposures to POPs pollution, a situation made even worse by the fact that these are sometime lower income, minority communities with less access to adequate protection, monitoring, and health care services. A recent survey of selected pollutants in the eggs of free-ranging chickens from likely POPs "hot spots" around the world demonstrated very high concentrations of dioxins and PCBs in samples from Mossville, Louisiana in the heart of the petrochemical region known ominously as "cancer alley" for the high rates of disease among residents.[10]

THE STOCKHOLM CONVENTION ON POPS

The Stockholm Convention is a ground-breaking treaty whose objective is "to protect human health and the environment from persistent organic pollutants." It sets out to ban or severely restrict this whole class of toxic chemicals, starting with 12 of the most well-known and hazardous POPs (shown in "The POPs 'Dirty Dozen'" table).[11]

In a nutshell, the POPs treaty:

- ***Bans 8 pesticides - aldrin, endrin, dieldrin, chlordane, heptachlor, hexachlorobenzene, mirex, and toxaphene - immediately.***

- ***Prohibits the production of PCBs immediately and phase out their remaining uses over time.***

- ***Limits DDT use to disease vector control while setting a long-term goal of its elimination.***

- ***Promotes strong action to minimize the release of industrial by-product POPs like dioxin***, with the aim of their ultimate elimination where feasible.

- ***Employs a science-based approach to identify and take action against additional POPs.*** The treaty establishes a scientific POPs Review Committee to evaluate additional chemicals - based on the criteria of toxicity, persistence, bioaccumulation, and long-range transport - for inclusion in the treaty in the future.

- ***Builds the capacity of all countries to eliminate POPs.*** The agreement will direct technical and financial assistance from developed to developing countries, thus enabling them to take effective action.

- ***Emphasizes preventive measures to address POPs at their source.*** The treaty encourages national regulations to prevent the development of new POPs, and promotes better materials, processes, and products for preventing POPs.

The treaty recognizes that eliminating some POPs is more difficult than others. Nine dirty dozen chemicals are slated for the quickest action. The pesticide DDT, which clearly meets the POP criteria, is treated differently, with special allowances made for its continued use in combating malaria in the tropics until effective and affordable alternatives can be put in place. A third category contains the unintentionally produced POPs, specifically the polychlorinated dioxins and furans.

It is worth noting the process that gave rise to this treaty. Between 1998 and 2000, more than 150 national governments met in a series of five Intergovernmental Negotiating Committee (INC) meetings in Montreal, Canada; Nairobi, Kenya; Geneva, Switzerland; Bonn, Germany; and Johannesburg, South Africa. This careful, deliberative process allowed national governments, international agencies, and advocates for business, environmental health, Indigenous Peoples and others to define the

The POPs "Dirty Dozen"[12]

POP	Description	For More Information
Aldrin	Pesticide widely used on corn and cotton until 1970. EPA allowed its use for termites until manufacturer cancelled registration in 1987. Closely related to dieldrin.	http://www.atsdr.cdc.gov/toxprofiles/phs1.html
Chlordane	Pesticide on agricultural crops, lawns, and gardens and a fumigant for termite control. All uses were banned in the United States in 1988 but still produced for export.	http://www.atsdr.cdc.gov/toxprofiles/phs31.html
DDT	Pesticide still used for malaria control in the tropics. Banned for all but emergency uses in the United States in 1972.	http://www.atsdr.cdc.gov/toxprofiles/phs35.html
Dieldrin	Pesticide widely used on corn and cotton until 1970. EPA allowed its use for termites until manufacturer cancelled registration in 1987. A breakdown product of aldrin.	http://www.atsdr.cdc.gov/toxprofiles/phs1.html
Endrin	Used as a pesticide to control insects, rodents, and birds. Not produced or sold for general use in the United States since 1986.	http://www.atsdr.cdc.gov/toxprofiles/phs89.html
Heptachlor	Insecticide in household and agricultural uses until 1988. Also a component and a breakdown product of chlordane.	http://www.atsdr.cdc.gov/toxprofiles/phs12.html
Hexachlorobenzene	Pesticide and fungicide used on seeds, also an industrial byproduct. Not widely used in the United States since 1965.	http://www.atsdr.cdc.gov/toxprofiles/phs90.html
Mirex	Insecticide and flame retardant not used or manufactured in the United States since 1978.	http://www.atsdr.cdc.gov/tfacts66.html
Toxaphene	Insecticide used primarily on cotton. Most uses in the U.S. were banned in 1982, and all uses in 1990.	http://www.atsdr.cdc.gov/tfacts94.html
PCBs	Polychlorinated biphenyls, widely used in electrical equipment and other uses. Manufacture of PCBs banned in the United States in 1977.	http://www.atsdr.cdc.gov/tfacts17.html
Polychlorinated Dioxins and Furans	Two notorious classes of "unintentional" pollutants, byproducts of incineration and industrial processes. Regulated in the United States under air, water, food quality, occupational safety, waste, and other statutes.	http://www.atsdr.cdc.gov/toxprofiles/phs104.html

scope and workings of an international agreement.[13] As a result, the POPs treaty enjoys broad support from people and governments from every corner of the globe.

The POPs treaty was formally signed in Stockholm, Sweden on May 21-23, 2001, resulting in the "Stockholm POPs Convention." By the time of COP1 in May 2005, 97 countries (plus the European Commission) had ratified or otherwise legally accepted the Stockholm POPs treaty. This includes traditional allies and major trading partners of the United States such as Canada, Mexico, Europe, Japan, China, Australia, and much of Latin America, Africa and Asia.[14]

The treaty's negotiators fully anticipated adding additional chemicals that meet the basic criteria for persistence, bioaccumulation, long-range transport, and toxicity. The treaty contains a rigorous, science-based process under which governments may nominate suspected POPs chemicals. An international committee of government-appointed scientists will decide whether the required criteria of persistence, bio-accumulation, potential for long-range transport, and adverse effects to human health or the environment are met. If the committee decides they are, it may recommend that the Conference of the Parties consider adding the chemical to the treaty.

The ABCs of POPs

Term	Description
COP1	The first Conference of the Parties, a formal meeting of countries that have ratified or acceded to an international agreement. For the Stockholm Treaty COP1 was held in Punta del Este, Uruguay on May 2-6, 2005.
FIFRA	The Federal Insecticide, Fungicide, and Rodenticide Act, the principal federal law for regulating agricultural chemicals (along with the 1996 Food Quality Protection Act)
HBB	Hexabromobiphenyl, a brominated flame retardant banned in the U.S. and Europe.
HCH	Hexachlorocyclohexane, a neurotoxic organochlorine pesticide that can affect reproduction, liver function, and the immune system. Lindane is one form of HCH.
LRTAP	The Convention on Long-range Transboundary Air Pollution, a regional agreement under the UN Economic Commission for Europe (for most of eastern and western Europe, Russia, the United States, and Canada) includes a 1998 POPs Protocol restricting Stockholm's "Dirty Dozen" and four others.
PAHs	Polycyclic aromatic hydrocarbons, a broad class of chemicals built on multiple benzene rings, such as benzo(a)pyrene.
PBDEs	Polybrominated diphenyl ethers, a class of chemicals added to many consumer and industrial products to reduce fire hazards. Penta-, octa- and deca- are commercial mixtures names for the predominant number of bromine atoms per molecule.
PBTs	Persistent bioaccumulative toxics, a loosely defined class of chemicals that are long-lived, likely to concentrate in the fatty tissue of living organisms, and potentially harmful.
PIC	Prior informed consent, a central feature of the Rotterdam Convention, an international agreement on government-to-government notification of imports of banned or restricted substances, especially pesticides
POPs	Persistent organic pollutants, a subset of PBTs. Chemists define "organic" as the chemistry of carbon, as opposed to metals, minerals, and other "inorganics."
POPRC	The POPs Review Committee is an international scientific body established under the Stockholm Convention to evaluate nominations of additional POPs to be added to the treaty
TSCA	The Toxic Substances Control Act, the 1976 U.S. federal law intended to regulate existing and new industrial chemicals

There are already some signals about chemicals that are likely candidates for addition to the Stockholm Convention. The regional LRTAP POPs Protocol already covers four chemicals that are not part of the Stockholm dirty dozen: the pesticides chlordecone, hexachlorocyclohexane (which includes lindane), and hexabromobiphenyl; and polycyclic aromatic hydrocarbons, a broad class of unintentionally produced chemicals.

WWF International released a report identifying twenty candidates for nomination for adding to the Stockholm POPs.[15] These include seven pesticides or biocides, five brominated flame retardants, two fluorinated chemical groups, four chlorinated groups, and two unintentional POPs.

During the negotiations, there was discussion of whether the Stockholm POPs treaty could someday include mercury, either in its elemental inorganic form or as an organo-mercury compounds. Nomination of mercury compounds to the POPRC is not likely in the near future, although such chemicals could meet the basic criteria.

U.S. RATIFICATION OF THE POPS TREATY

The United States played a major role in the negotiations leading up to the conclusion of the POPs treaty in South Africa in late 2000. In April 2001, President George W. Bush stood in the Rose Garden with Secretary of State Colin Powell and EPA Administrator Christine Todd Whitman and embraced the new agreement. American environmental groups and industry associations testified in favor of prompt U.S. ratification. Unfortunately, fours years later, neither Congress nor the White House has produce been able to develop a good faith proposal for joining the world in this important work.

Why should the U.S. join Canada, the Europe Union, Japan, and most of Latin America, Africa and Asia in ratifying the Stockholm POPs Convention?

Top Five Reasons for U.S. POPs Ratification

1. **Because global solutions require global cooperation.**
2. **Because we have expertise and experience to share.**
3. **Because we benefit from working with others.**
4. **Because we said we would.**
5. **Because we owe it to future generations.**

The United States was once recognized as a leader on industrial pollution, but that leadership has been eclipsed by other countries and by progressive action by state and local government within the U.S.

EPA's draft PBT action plan, for example, has languished since 1998. Its National Action Plan for Mercury has remained in draft form over the same seven-year period. Even EPA's Dioxin Reassessment—a scientific study that is several steps shy of "action plan" status—has been tied up in seemingly endless review for an astonishing 14 years. So in some ways, the POPs treaty offers a good opportunity to reinvigorate U.S. effort to take prompt action on these dangerous chemicals.

The road to U.S ratification of the POPs Treaty requires the "advice and consent" of two-thirds of the Senate, a special duty set out in the U.S. Constitution.[16] As a matter of policy, the Senate rarely considers treaty ratification until the legal framework is in place to implement our obligations. So U.S. POPs ratification begins with the legal mechanics of amending two federal laws. The Toxic Substance Control Act of 1976 (or TSCA), which is the principal federal authority for regulating existing and new industrial chemicals. In nearly 30 years,

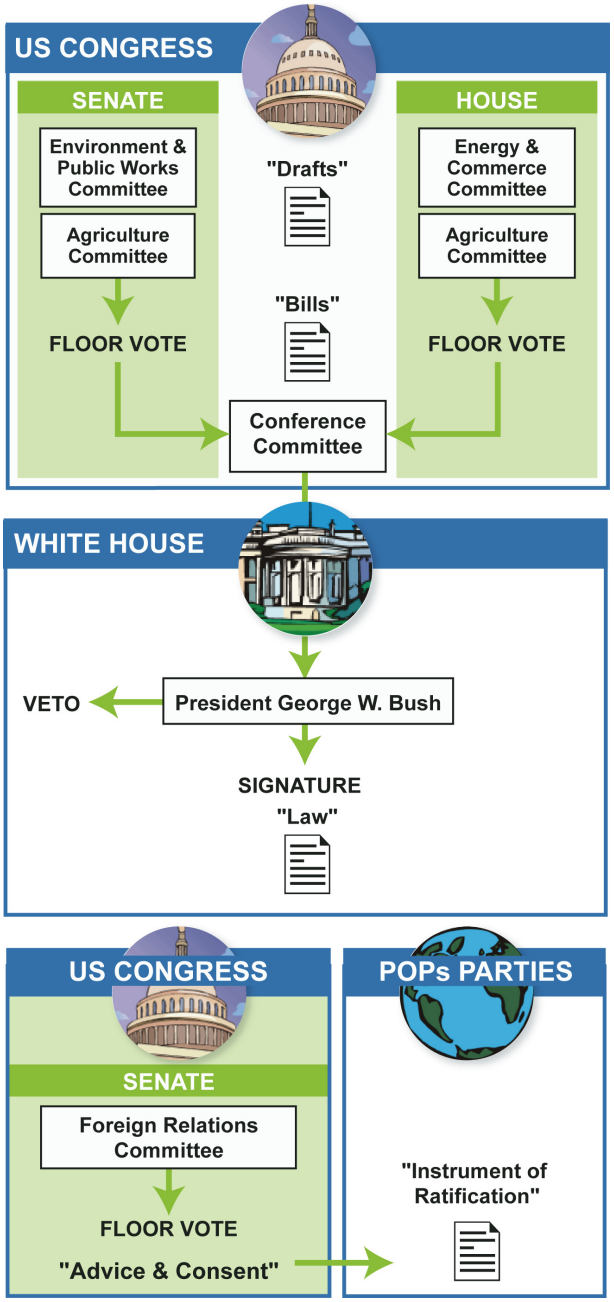
this law has never been amended, despite widespread agreement that it is largely ineffective.[17] The other major law requiring amendment, the Federal Insecticide, Fungicide, and Rodenticide Act (or FIFRA), establishes somewhat different regulatory requirements those who make and use many agricultural chemicals.

As illustrated in the figure, making even minor changes to TSCA and FIFRA automatically involves four Congressional committees, two each in the Senate and House of Representatives. After TSCA and FIFRA amendments pass floor votes in the Senate and House chambers, differences between the two chambers are negotiated in the Conference Committee. The compromise text is next sent to the White House for the President's signature (or veto) leading to enactment into federal law.

With these changes in U.S. law and the federal government then able to meet its obligations under the treaty, the Senate Foreign Relation Committee would consider "advice and consent" on ratification of the treaty itself. With committee approval the treaty goes to the Senate floor where a two-thirds majority of the Senators present is required. The final step in U.S. ratification is the official presentation of the articles of ratification to the others Parties to the Convention, namely other nations that have similarly ratified the agreement.

In 2003, the Senate Environment & Public Works Committee (EPW) voted a bill on POPs implementation (S. 1486) out of committee. Agriculture committees in both the Senate and House have circulated drafts to amend FIFRA. In June 2004, Rep. Paul Gillmor (R-OH), chair of the relevant subcommitee under the House Energy & Commerce (E&C) Committee, offered draft TSCA amendments.

U.S. POPs Roadmap to Ratification



A subcommittee hearing in July 2004 revealed strong resistance to the Gillmor proposal from House Democrats, legal experts, state officials, and the environmental community. Law Professor Lisa Heinzerling testified that the Gillmor draft "would virtually guarantee that no new toxic substances would be added to the list of substances regulated by international agreements on POPs."[18] In September 2004, some 42 organizations sent an open letter to

the Chairs and Ranking Members supporting U.S. ratification, but strongly opposed to the Gillmor draft.[19]

ESSENTIALS FOR U.S. LEADERSHIP

More recently, advocates for prompt and proper U.S. ratification of the Stockholm POPs treaty have advanced a set of "essential elements" of any U.S. implementing legislation. These include:

Prompt U.S. Action

The United States must promptly decide whether to regulate a POP when it is added to the treaty. Because of the treaty's "opt-in" safeguard, we can never be bound against our will by an international new listing decision.

Respect for State Efforts

Implementing amendments should support, not preempt, state laws that safeguard public health and the environment from POPs, such as those already enacted in California, Maine, Hawaii, Michigan, New York, and elsewhere.

Clear Legal Authority

The law should facilitate U.S. action, not hinder it. EPA must have the authority to respond quickly and effectively when POPs are added to the treaty by:

- Taking advantage of the international scientific evaluation, rather than initiating a new and redundant investigation;
- Reviewing scientific evidence according to standards required under current U.S. law, not untried approaches that demand perfect scientific certainty before taking action;
- Using the health-based regulatory standard agreed in the Convention, not a controversial "cost-benefit balancing" test that puts a price on human life.

Since the United States essentially banned all of the intentionally produced "dirty dozen," the most important part of the treaty is the part dealing with identifying and adding other POPs. The United States is expected to avail itself of an option provided in the Stockholm Convention's Article 25.4, so that any treaty amendment to add a chemical can only apply to the United States if we decide to "opt in" to it. Thus we can never be bound by a new listing decision against our will.[20]

NOTES

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[9] Indigenous Environmental Network - Northwest Office, Support Stockholm Convention to Eliminate Chemicals Threatening Indigenous Peoples. Beellingham, WA. April 12, 2005.

[10] DiGangi, J. and Petrlík, J. The Egg Report: Contamination of chicken eggs from 17 countries by dioxins, PCBs and hexachlorobenzene. International POPs Elimination Network (IPEN). May, 2005.

[11] United Nations Environment Programme, Interim Secretariat. The Stockholm Convention on Persistent Organic Pollutants (POPs), GE.01-02667 UNEP/CHEMICALS/2001/3, October 2001.

[12] Adapted from the Public Heath Statements on select chemicals, Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services.

[13] World Wildlife Fund-US, "History of the POPs Negotiations," http://www.worldwildlife.org/toxics/results/results4a.cfm

[14] UNEP maintains a roster and world map indicating signatories and Parties to the Stockholm Convention and related agreements. http://www.pops.int/documents/signature/world-signatories.pdf

[15] WWF International, "Stockholm Convention 'New POPs:' Screening Additional POPs Candidates," April 2005. http://panda.org/downloads/toxics/newpopsfinal.pdf

[16] The Constitution of the United States, Article 2, Section 2.

[17] General Accounting Office, "Toxic Substances Control Act - Legislative Changes Could Make the Act More Effective," GAO/RCED-94-103, September 1994.

[18] Testimony of Georgetown University Law Professor Lisa Heinzerling before the House Subcommittee on Environment and Hazardous Materials, Hearing on POPs, PIC, and LRTAP: The Role of the U.S. in Draft Legislation to Implement These International Conventions, July 13, 2004.

[19] Letter to the Chairs and Ranking Members of the House Energy & Commerce Committee and the House Subcommittee on Environment and Hazardous Materials, Re: Proposed TSCA Amendments to Implement the Stockholm Convention on Persistent Organic Pollutants (POPs). Signed by 42 environment, health and labor organizations, September 24, 2004.

[20] Testimony of CIEL Senior Attorney Glenn Wiser before the House Subcommittee on Environment and Hazardous Materials, Hearing on POPs, PIC, and LRTAP: The Role of the U.S. in Draft Legislation to Implement These International Conventions, July 13, 2004.

States Progress on POPs

WHY FOCUS ON THE STATES?

In the absence of federal leadership, U.S. states are taking up the challenge of persistent bioaccumulative toxics, or PBTs. Some of this is driven by necessity, since communities and states are close to the front line of human exposure to chemicals and environmental contamination. When dangerous chemicals are detected in our air, our water, our food, our homes, and even our own bodies and our children, public officials are compelled to act. This momentum is evident in a series of state laws restricting high priority chemicals, new undertakings to track and monitoring pollutants and health, programs to boost public understanding and safer alternatives.

Why is this alignment among global, state and community efforts important? There are several reasons. For one, all of these political jurisdictions share an affirmative duty to protect public health. Action on PBTs is first and foremost about preventing the costly and irreversible consequence of health and environmental impacts. The fact that this is a widely shared aim is also essential since no state and no country, including the United States, is capable of tackling persistent pollutants alone. At the same time, some U.S. states are larger than most countries: California's two trillion dollar economy ranks sixth in the world, creating a major lever for national policy and international markets.

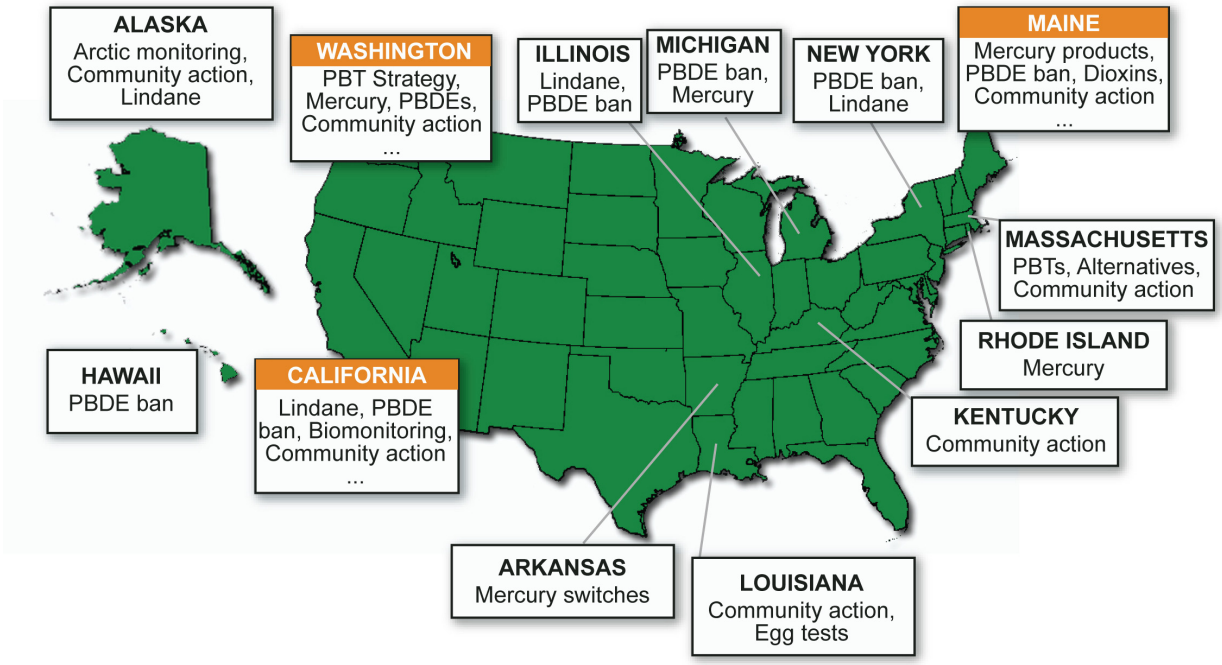
Another important fact is that the state and community drive to eliminate PBTs keeps the United States moving forward with new information, real world experience, and popular support for action no matter which way the political winds are blowing in Washington, D.C. One consequence of the policy void in Washington, D.C. is that these approaches are as varied as the states and localities themselves. This creates a policy patchwork that will ultimately demand some sort of national harmonization. The states are still "laboratories" for reform as Supreme Court Justice Brandeis wrote in the 1930s, but they are also keepers of the flame.[1]

There is disturbing trend toward centralization of power in the federal government, at least for public health and environmental matters, a development that could prove troubling to many political conservatives.[2] The key concept here is federal preemption of state and local laws. For PBTs, it seems entirely appropriate that federal regulations should establish a national floor to avoid pollution havens within the 50 states. But federal law should never create a ceiling, constraining state, local or tribal environmental action.

POPS AND THE STATES

While the federal government dawdles, many states are not waiting. Driven by legislation, regional agreements, public health concerns, and a penchant for independence, many states

POPs Actions in the States



have made real progress on POPs. This report spotlights several examples of state leadership on persistent, toxic substances. We have chosen three states--Maine, California and Washington--because they illustrate a breadth of approaches. But the range and dynamism of these state and local approaches is found far beyond these jurisdictions.

This national map provides a glimpse of several, but not all, of the many POPs actions around the country. States of all shapes, sizes and political orientations are enacting legislation on specific chemicals, such as dioxins, mercury, brominated flame retardants. Some have initiated environmental health tracking or biological monitoring programs to gather basic information about the extent of human exposure to chemicals and identify impacts on public health. Some states are driving greater public disclosure through labeling requirements and creating procurement policies that favor PBT-free products and services and spur markets.

This report aims to sample, not catalog, the full range of initiatives unfolding across the country. We have chosen to feature three states, Maine, Washington, and California that have active programs on PBT chemicals and will highlight some of the most promising approaches and demonstrate some ways that these ideas are being translated into public policy. There are many other activities within these three states, and a rich variety of experiences in the other 47 states. By shining a light on these example, we want to recognize and encourage these positive steps.

In choosing and developing these stories, we consulted with public interest allies working on the ground, reviewed legislative initiatives, and gathered resources and links that will to aid U.S. activists, policy makers, and even businesses trying to prepare for the evolving world of chemicals management. We also hope that this "good news" about American commitment to eliminating persistent organic pollutants and other PBTs will provide a fuller, more positive picture to the world.

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Maine

Spotlight on Mercury, PBDEs, and Dioxin

Encompassing the far northeastern tip of the United States, Maine has a reputation for rugged individualism and the outdoor life. It is almost as large as the five other New England states put together, yet has a population of only about 1.3 million inhabitants. Maine's 17 million acres of forest draw tourists and supply the state's pulp and paper mills with raw materials, while its 3500 miles of coastline support a major fishing and lobstering industry. Maine and lobsters are synonymous—the state harvested more than 57 million pounds in 2000. Many Mainers are farmers; the state boasts the largest low-bush blueberry crop in North America and is nation's fourth largest potato producer.

Despite the state's rural nature and relative lack of heavy industries, POPs and PBTs are ubiquitous pollutants in Maine. Some of Maine's POPs and PBTs are homegrown—such as the dioxin discharged from its pulp mills. More than 100 industrial sources in Maine release 100,000 pounds of persistent toxic chemicals into the state's environment every year.[1] But much of the pollution is this remote Northern state is imported from other states, neighboring Canada and other countries. Whatever their origin, a variety of persistent pollutants now contaminate Maine's air, water, wildlife, and food, threatening the health of Mainers and the future of some of their most treasured natural resources, such as its loons and lobsters.

MAINE BREAKS NEW GROUND ON POPS AND PBTS

Given the many out-of-state sources of this chemical threat, Maine might have waited for federal regulations or international action, such as the Stockholm Convention, to protect its people and wildlife from POPs. Instead, the state has taken aggressive—sometimes groundbreaking—actions of its own. In this spotlight on Maine, we will feature a few key policies—from a slew of mercury product laws to the nation's most far-reaching ban on the use of certain brominated flame retardants—that make Maine a model of state action on POPs and PBTs.

Mercury Product Bans and Regional Cooperation

According to the state Department of Environmental Protection, mercury levels in Maine fish, loons, and eagles are among the highest in North America.[2] Widespread mercury pollution of Maine's waters has led the state Bureau of Health to issue a statewide advisory recommending that pregnant women, women of childbearing age, and children under the age of 8 avoid eating nearly all fish from Maine's lakes and rivers.[3] The advisories have been in place since 1994 and remain in effect today because mercury levels in fish have not decreased. In addition, the Micmac tribe of Maine has issued tribal statewide advisories for mercury in freshwater and marine fish, including lobster.[4] The contamination of culturally important food sources for this and

other indigenous populations in Maine is particularly troubling.

Mercury also poses a danger to a major tourism draw in Maine—the wildlife associated with the state's seemingly pristine wilderness and recreation areas. Studies have shown, for example, that mercury is diminishing the ability of loons to reproduce. The DEP recently reported that at current mercury levels in the environment, population modeling predicts Maine's beloved loon population cannot be sustained.[5]

In an effort to reduce mercury pollution within its borders and throughout the region, Maine has played a lead role in cooperation among northeastern states and has enacted a host of its own state laws and regulations banning the sale of mercury-containing products. As a member of the Northeast Waste Management Officials' Association (NEWMOA), Maine adopted a "virtual elimination" goal for mercury and participated in developing NEWMOA's Mercury Education and Reduction Model Legislation.[6] In 2001, Maine enacted its own mercury product legislation. One important provision in this law requires manufacturers who add mercury to their products to notify the state. The resulting notifications are entered into a database known as the Interstate Mercury Education and Reduction Clearinghouse (IMERC), maintained by NEWMOA. This clearinghouse of information from IMERC member states (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, Washington, and Illinois) is a valuable tool to assist policymakers in Maine and throughout the region in identifying problem products and requiring alternatives.

In contrast with some other IMERC states (such as Connecticut and Rhode Island) that have pursued a phaseout strategy involving caps on the amount of mercury allowed in products across the board, Maine has opted to single out and ban specific products. Maine's 2001 mercury legislation also banned the sale of mercury switch thermostats.[7] Though the National Electrical Manufacturers Association applied for an exemption, it was denied and the ban will take effect as of January 1, 2006.[8] In 2003, the governor signed additional sweeping legislation banning, with some exceptions, the sale of mercury switches, relays, and a wide variety of measuring devices (including barometers; hydrometers, sphygmomanometers, and thermometers) as of July 1, 2006.[9]

In 2002, Maine enacted the nation's first law banning mercury switches in new motor vehicles sold in the state and making automakers responsible for recovering and recycling of mercury-added switches from existing end-of-life vehicles. The law prohibits the sale of a motor vehicle assembled after January 1, 2003 if it contains a mercury

Maine has played a lead role in cooperation among northeastern states and has enacted a host of its own state laws and regulations banning the sale of mercury-containing products.

switch. It requires mercury switches and mercury headlamps to be removed from end-of-life vehicles before they are flattened or crushed. Finally, it requires auto manufacturers to establish consolidation centers and to pay a bounty of at least $1 for each mercury switch brought to the centers. The automakers are also required to provide for shipping of the switches to recycling centers.[10] Based on a survey by the Natural Resources Council of Maine, the law has been successful thus far, with end-of-life vehicle handlers collecting 17,000 switches since the program began January 1, 2003.[11] Though this is only 30% of the switches thought to be available for capture during that time frame, it represents roughly 37 pounds of mercury kept out of Maine's environment.[12]

Building on these and other existing mercury protections, Maine state legislators proposed broader legislation on mercury-containing products in 2005. For example, LD 185 would raise bounty on recovered automotive switches from $1 to $4 per switch, and require labeling of automobiles and other vehicles for mercury-containing lamps as of January 1, 2006.[13] This bill is has cleared the committee process and is expected to pass during the 2005 session.

Maine's Presumptive Deca Ban

The three most common forms of PBDEs (penta-, octa- and deca-) are mixtures named for the number of bromine atoms attached to the double-ringed diphenyl ether molecule. These substances have distinct chemical properties and are used in different kinds of consumer products. Penta-BDE is used in polyurethane foam such as in mattresses, seat cushions, other upholstered furniture and rigid insulation. Octa-BDE is used in high-impact plastics such as fax machines and computers, automobile trim, telephones and kitchen appliances. Deca-BDE is used in carpet foam pads, draperies, television sets, computers, stereos and other electronics, cable insulation, adhesives, and textile coating. The health effects of PBDEs have not been studied extensively in humans, but animal studies suggest that PBDE exposure before and after birth causes problems with brain development. These studies indicate impacts on learning, memory and behavior, as well as decreased thyroid hormone levels and reproductive and immune system problems, especially with penta-BDE. Similar effects are seen with octa- and deca- forms of PBDEs, but to a lesser degree. Deca- is problematic because there is evidence that it can degrade to the penta- and octa- forms in the environment.

In addition to Maine, several other states have acted to ban the use of penta- and octa-BDE, and the sole U.S. manufacturer of these two types of PBDEs has agreed to phase out their production in 2005. However, Maine has gone further than other states with the ban on deca-. Deca- is the most widely used PBDE flame retardant in the Americas, accounting for 74 percent of the total market in 2001. Maine's action to ban deca- by 2008 is spurring others states to take actions that may ultimately remove these dangerous chemicals nationwide.

Additional legislative on mercury dental amalgam and mercury batteries in children's products will be carried over into the 2006 session.

Going the Next Step on PBDEs

Little or no data exist to document levels of PBDEs in Maine's environment, wildlife, and people. However, levels are likely to be similar to those that have been measured in other U.S. states. Researchers were shocked in 2002 when analysis of PBDEs in San Francisco Bay harbor seals and human breast adipose tissue from California women revealed startlingly high levels.[14] Average PBDEs levels in these California women were the highest human levels reported anywhere in the world at that time. A 2003 study analyzed maternal and fetal serum samples from Indiana mothers and infants, and found PBDE levels that were 20-106-fold higher than the levels reported previously in a similar population of Swedish mothers and infants.[15] A third U.S. study found similar PBDE levels in breast milk of women in Austin and Dallas, Texas.[16] All these U.S. PBDE levels are 10-100 times greater than human tissue levels in Europe.

A March 2005 study released by a multi-state coalition of non-governmental organizations provides the most recent glimpse into possible human exposure to PBDEs (and other POPs) in Maine. This report found measurable levels of three types of PBDEs in house dust collected from 70 homes, including ten homes from across the state of Maine. Levels were similar to those reported in the same study from household dust in six other states.[17]

On April 14, 2004, Maine Governor John Baldacci signed into law the most far-reaching protections from PBDEs in the nation. The law bans the sale in Maine of products containing the penta- and octa-BDEs as of January 1, 2006. The law followed a similar action by California in 2003, but it also went an important step further. The Maine law was the first in the nation to contemplate the phaseout of the third widely used PBDE, deca-BDE. The deca- ban will take effect on January 1, 2008 if safer alternatives are available. A February 2005 report by the Maine Bureau of Health and the Maine Department of Environmental Protection concluded that levels of deca-BDE in the environment and in human tissue are increasing, and that currently available evidence supports the decision of the Maine Legislature to establish a presumptive ban on deca-BDE.[18] The report, which was required by the Maine legislature under the new PBDE law, also concludes that safe and effective alternatives for achieving flame retardancy appear to be available for all current deca-BDE applications, though they are generally more expensive. While raising the concern that some manufacturers might respond to a deca- ban by foregoing the use of effective (or any) flame retardants, the agencies ultimately recommended that the presumptive deca- ban be kept in place.

Source Reduction and a Dioxin Elimination Goal

Maine is the second leading paper producer in the U.S.[19] The pulp and paper manufacturing industry has long been the most significant source of dioxin to Maine's rivers and among the most contentious sources of dioxin pollution in the state. In 1985, dioxins were first found in fish below Maine's seven "bleach kraft" paper mills that use chlorine compounds to bleach pulp. These mills discharged over 100 million gallons of wastewater a day to the Penobscot, Kennebec, Androscoggin, Presumpscot, and St. Croix rivers, and dioxin levels made stringent fish consumption advisories necessary.[20]

As in other states, dioxins are also released to air, water, and soil by a variety of human

activities in Maine. A 2001 inventory of dioxin sources by the Maine Department of Environmental Protection (DEP) shows that solid waste disposal produces by far the largest share of Maine's dioxin releases to the air. These occur in the form of air emissions from municipal and medical waste incinerators and backyard trash burning, along with the resulting dioxin-laden ash, which is then landfilled.[21] Maine is among a handful of states that burns more than half of its solid waste.[22] A survey conducted by Maine DEP in 1997 revealed that approximately one in 58 households in the state disposed of garbage by backyard burning. Though the state has since prohibited backyard burning, DEP reports that the practice continues in some parts of the state.

The Stockholm Convention urges governments to prevent dioxin emissions through source reduction, and Maine has begun to consider this. In 2001, the state identified polyvinyl chloride (PVC) plastic as a problem waste.[23] PVC is more than 50 percent chlorine by weight, and its combustion can create significant dioxin emissions.[24] Legislation was proposed to encourage the diversion of PVC waste away from municipal incineration, but the bill was substantially amended as a result of strong opposition by the chemical industry. Instead, the final law banned all open burning of solid waste in Maine (except for clean wood waste), funded a one-time public education program to discourage open burning and promote PVC alternatives, and required a study to assess the feasibility of diverting PVC waste from incineration. The resulting report of the multi-stakeholder Plastics Study Group indicated support for identifying PVC as a material of concern and for efforts that would result in the diversion of PVC away from incineration."[25] Unfortunately, there has since been a lack of political will to implement this recommendation and a lack of needed state funding for household hazardous waste collection programs, so this remains unfinished business.

Perhaps the most striking element of the 2001 legislation is its aspirational language regarding dioxin. Mirroring wording in the Stockholm Convention, the Maine law states that it is the state's policy "to reduce the total release of dioxin and mercury to the environment with the goal of its continued minimization and, where feasible, ultimate elimination."[26] In Maine, as elsewhere around the U.S. and the world, further work is needed to achieve this lofty goal. Nevertheless, Maine's commitment to dioxin elimination is a promising start.

In 1996, then-Governor Angus King announced a plan to eliminate dioxin discharges from seven pulp mills along the Kennebec, Androscoggin, and Penobscot rivers within four years.[27] Subsequent legislation formally required the industry to achieve such a goal. The state law has been described as setting the strongest standards for mill discharge in the nation. However, implementation of the law has been controversial because it allowed the industry to switch to a chlorine dioxide, rather than chlorine-free, bleaching process. Its success

will be determined by comparison of dioxin levels in fish upstream and downstream from mills, which may not accurately reveal continuing dioxin problems from mill discharge.

The most recent data on dioxin and furan concentrations in the Kennebec and Penobscot Rivers fish indicate that dioxin advisories may soon be unnecessary for bass and trout caught there. The prognosis for consumption advisories on the Androscoggin River is less optimistic as dioxin and furan levels remain elevated for some species in some locations.[28] A switch to chlorine-free bleaching would better achieve Maine's dioxin elimination goal.

LESSONS FROM MAINE'S PROGRESS

Over the last decade, Maine has taken many significant steps to protect people and wildlife in the state from toxic chemicals in the environment. These actions were driven by the concerns of Mainers, and occurred largely in the absence of strong federal protections. The results of Maine's proactive approach to chemicals regulation are encouraging. The latest report of the EPA's annual Toxic Release Inventory (TRI) indicates that total releases of several hundred industrial chemicals in Maine declined by 73 percent between 1988 and 2002.[29] This compares favorably to a national decline in chemical releases of approximately 57 percent over the same period. It is still too early to know if Maine's recent actions on POPs and PBTs will achieve similar results—dioxins, mercury, and other PBTs have been reported under TRI for only three years, and no trend data at all exist for PBDEs. But Maine's past successes and continued commitment to eliminating POPs and PBTs is promising.

Maine's progress on POPs and PBTs is instructive to the debate over U.S. ratification of the Stockholm Convention and elements of the federal implementing legislation that has been proposed. The case of Maine provides a model for putting into practice some of the key concepts embodied in the Stockholm Convention, including pollution prevention and substitution. It illustrates the importance of building strong alliances—and of learning from experience—to achieve practical solutions. And it shows that cross-border action is helpful and indeed necessary for protecting people and the environment from persistent pollutants.

Maine's actions to control POPs and PBTs reflect a number of key concepts of the Stockholm Convention. For example, the Stockholm Convention emphasizes pollution prevention and material, product, and process substitution in its Annex C provisions on unintended by-product POPs, such as dioxins and furans. Maine has put these same concepts into practice to reduce PBT pollution in a state where trash disposal is the major source of dioxin and mercury pollution. Rather than attempting to regulate mercury emissions at the "end of the pipe," Maine has opted to remove mercury-containing products before they enter the marketplace and encourage mercury-free products. Implementation of Maine's promising dioxin elimination goal will similarly create a strong spur to companies providing safer alternatives.

Maine is a small state with relatively little heavy industry. Compared with other U.S. states, and it has done a good job of regulating most of the POPs-producing industries that it has. It has often been at the forefront of the national and international effort to eliminate POPs and PBTs, and it has also been quick to learn from and cooperate with other states. Maine and other states must be empowered to continue demonstrating leadership in eliminating persistent organic pollutants especially when the federal government is lagging.

Maine has made a good start in joining with neighboring states and Canadian provinces in the region to expand its own efforts on persistent pollutants. By cooperating in cross-border alliances, Maine is leveraging greater POPs and PBTs reductions across the region. Non-governmental organizations in Maine have also benefited from working in coalitions to achieve pollution reduction policies. Working collaboratively with each other and with like-minded organizations across the country, the Maine-based Environmental Health Strategy Center, the Natural Resources Council of Maine, the Maine chapter of Physicians for Social Responsibility, and others have created an effective force for progressive statewide policies on POPs and PBTs.

STATE AND REGIONAL CONTACTS

Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333
Phone: (207) 287-7688, (800) 452-1942
http://www.maine.gov/dep

Environmental Health Strategy Center
P.O. Box 2217
Bangor, Maine 04402
Phone: (207) 827-6331
http://www.preventharm.org

The Natural Resources Council of Maine
3 Wade Street
Augusta, ME 04330
Phone: (207) 622-3101
http://www.maineenvironment.org

Northeast Waste Management Officials' Association
129 Portland Street, 6th Floor
Boston, MA 02114
Phone: (617) 367-8558
http://www.newmoa.org

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California

Spotlight on Lindane, PBDEs, and Biomonitoring

California is a land of "firsts," a state that is often ahead of the curve. Over the years the state has given the world, among other things, the first blue jeans, the first McDonald's restaurant, and the first personal computer. When it comes to the environment and health in California, there have also been many firsts. California enacted the nation's first motor vehicle emission standards in 1966 and the first state "environmental quality act" (requiring environmental assessment and accountability by state agencies) in 1970. California's Proposition 65, approved by the state's voters in 1986 and officially known as the Safe Drinking Water and Toxic Enforcement Act is still the only law of its kind in the nation, requiring warning labels on gasoline pumps, alcoholic beverages, and other products known or suspected to cause cancer or birth defects. These and other laws have greatly benefited health and the environment in the state, and have often spurred similar actions elsewhere around the nation.

California is also a land of contrasts and diversity. From mountains and deserts to miles of coastline and the famed San Francisco Bay—one of the largest and most complex estuaries in the nation--California boasts a staggering variety of ecosystems and a wealth of natural resources. Its human environments are also diverse, encompassing the sprawling metropolis of Los Angeles (America's second most populous city), quintessential American suburbs, and the vast farming regions of the Central Valley. California's people reflect a diversity of economic status, racial background, and occupation. The state's 35.5 million residents—12 percent of the entire U.S. population—range from Hollywood millionaires to the high-tech workers of the Silicon Valley to thousands of poor migrant farm workers and other recent immigrants.

California's history of firsts in the area of environmental health regulation, combined with an economy larger than most of the world's countries, uniquely positions the state to drive progressive POPs policy beyond its borders. As this profile will show, California is doing just that.

POPS FIRSTS IN CALIFORNIA

In this spotlight on California, we will present a few recent state-level policy efforts that are most relevant to the Stockholm Convention's goal of elimination of the class of chemicals known as POPs. We are not attempting to present an exhaustive account of California's progressive actions on POPs, chemicals, or environmental health promotion, a task that is far beyond the scope of this report. Instead, we've chosen to focus on three distinct approaches that help illustrate some significant ways that states can protect their citizens and help drive a larger movement for POPs elimination. California's successful efforts to phase out lindane and PBDEs, as well as the unfinished drive by state agencies, legislators, and NGOs to begin comprehensively looking for POPs in the bodies of Californians, are all important "firsts" that are having broader implications.

First in the Nation, California Goes Lindane-Free

Mention "pesticides" and many people think of crop dusters and other symbols of large-scale agricultural chemical use. With a farm sector worth $25 billion a year, California is the most agriculturally productive state in the United States,[1,2] and large-scale agriculture has been accompanied by large-scale chemical use. Yet only about a third of the 175 million pounds of pesticides used in California annually is used in farming.[3] For many pesticides, commercial, institutional, and household uses have far exceeded the quantities applied to California's farm fields in recent years.

For many pesticides, commercial, institutional, and household uses have far exceeded the quantities applied to California's farm fields in recent years.

The persistent pesticide known as lindane has long been used as a treatment for head lice and scabies, in addition to its use on crops. The best-known pharmaceutical lindane product was sold as "Kwell" shampoo since the 1950s. It has since been withdrawn from the market, but other lindane-based products are still available in much of the U.S. by prescription.

The use of lindane in lice and scabies control poses a hazard to treated individuals, especially children, who have been shown to be vulnerable to seizures and other central nervous system effects as a result of lindane exposure.[4] Lindane-containing shampoos and other products also end up in drinking water sources and other waterways. In 2000, EPA promulgated water quality standards known as the California Toxics Rule, to protect aquatic life and human health in the state.[5] This rule established a criterion of 19 parts per trillion (ppt) of lindane for water bodies used or potentially used as drinking water sources. In a recent letter to EPA, the Los Angeles County Sanitation Districts (LACSD) expressed their concern about discharges of lindane from their wastewater treatment plants. They noted that one to two ounces of a typical lice or scabies treatment containing 1 percent lindane is enough to pollute six million gallons of water to EPA's 19 ppt standard.[6]

Though the federal Food and Drug Administration continues to approve lindane for lice and scabies treatment, the state of California began a process of phasing out these uses nearly 20 years ago. The California Department of Health's Division of Communicable Disease Control stated in 1987 that lindane "is less effective and has more potential toxicity than the easily available alternatives, [and] there is no reason to continue prescribing this material for the control of head lice in California." In 1996, the Division again noted that lindane "is both the least effective and, by far, the most toxic" treatment for head lice.[7] The California Department of Corrections, among others, heeded this advice, discontinuing lindane use for lice and scabies by 2001.[8]

Finally in 2000, California enacted a statewide ban on the sale and use of lindane in lice and

scabies preparations. Since the ban took effect on January 1, 2002 implementation has been both smooth and effective. Measured levels of lindane leaving water treatment plants had dropped dramatically by the end of 2003--from a range of 30-340 ppt (with most releases around 40 ppt) before the phase out to a range of 0-30 ppt (with most releases less than 5 ppt).[9]

Despite the policy success, Los Angeles continues to see detectable amounts of lindane in its wastewater. The LACSD notes that the continuing lindane loadings may be coming from pharmacies or consumers that are not aware of the ban and from lindane lice and scabies products that enter California from out-of-state.[10]

California's agricultural sector will soon be lindane-free as well. While in 1991, some 51,000 pounds of lindane was sold in the state, no lindane pesticide has been sold in California since 2000. Usage of existing stocks of lindane has continued at a declining rate, with 908 pounds used in 2003 (mostly on dried beans and corn). In 2002, the U.S. EPA restricted agricultural lindane to use as a seed treatment for six grain crops, and in March 2005 the last lindane product registered for sale in the state of California was voluntarily withdrawn by the manufacturer. Once the registration withdrawal is fully implemented, a process that takes about 18 months, there will be no lindane pesticides that can be legally sold in California.

POPs/PBTs and California's High-Tech Industry

With its famed Silicon Valley and a vast network of manufacturers serving the aviation, defense, and consumer sectors, California is a leading producer of computers and other high-tech electronic equipment. Despite its original image as a clean industry, the computer and electronic sector depends critically on complex chemistry and exotic materials. Solvents like TCE were detected in groundwater in the mid 1980s, and there have been a steady stream of cases arguing that workplace chemical exposures with devastating health impacts including death.

The electronics industry is also characterized by rapid technological turnover and short product lifetimes--witness the growth in old PCs, TVs, and other obsolete hardware cluttering basements and garages across the nation. Unfortunately, many of these products contain persistent, bioaccumulative, or toxic substances. These include POPs and PBTs such as lead, mercury, cadmium, brominated flame retardants, and halogenated organic

Lindane hasn't been missed in lice treatment

The Food and Drug Administration continues to insist that lindane be kept on the market as a tool for physicians treating lice and scabies. But there is strong evidence that other shampoos and non-chemical treatments (e.g., wet combing) are much more effective than lindane products, particularly for lice treatment. Medical professionals and public health officials have reported no problems in implementing the California ban. According to the CEO of the California Pharmacists Association, the loss of lindane pharmaceutical products has caused no complaints and was "not even a blip on the radar."[11]

The success of California's ban has also generated significant interest in other states. Similar legislation is moving forward in New York and Illinois, and other state-level mechanisms to discourage lindane use are being discussed in Washington, Maine, Michigan, Indiana, and Alaska.

compounds that can contribute to the formation of dioxins, furans and other POPs when incinerated.[12] As manufacturing facilities have reduced emissions, thanks to the vigilance of NGOs like the Silicon Valley Toxics Coalition, attention has shifted to the products from design to production through use and end-of-life management. In this more holistic view, persistent substances that pose some danger to public health or the environment are a potential problem. An estimated 300 million computers were estimated to become obsolete in the United States in 2004, containing roughly one billion pounds of lead, two million pounds of cadmium, and 400,000 pounds of mercury.[13] The quantity of brominated flame retardants in video monitors alone is a staggering 350 million pounds.[14]

Perhaps partly as a result of the heavy use of flame retardants in the high-tech industry, PBDE levels in California's San Francisco Bay Area are among the highest levels measured anywhere in the world. PBDE levels have been analyzed in the San Francisco Estuary and its sediments, a variety of local wildlife species, and the region's human inhabitants. In case after case, researchers have found startlingly high levels of PBDEs in this ecosystem.

For example, one study found sediment concentrations slightly higher than previously documented European, Japanese, and Virginia river sediments, and concentrations in blue mussels that were 11-34 times higher than those found in a rural area of southern Greenland.[15] Another study, conducted by the Environmental Working Group, tested six of the 10 most commonly caught and eaten species in the Bay and compared the results with previous data from 1997.[16] Every sample from both years was found to contain the seven most common PBDEs. Comparison of the 2002 and 1997 samples suggests a steep rise in PBDE concentrations San Francisco Bay fish

over the period, especially in large, carnivorous fish such as striped bass and halibut. Because PBDEs bioaccumulate, levels are higher as one looks up the food chain. This has been true in the San Francisco Estuary, where researchers found the some of the world's highest levels of PBDEs in harbor seals[17], and seabird eggs.[18] And again, the levels are rising quickly—concentrations in the seals were found to have doubled every 1.8 years between 1989 and 1998.

Tests of human breast adipose tissue from Bay Area women have also revealed astonishingly high levels of PBDEs. Average PBDEs levels in women tested in a 2002 study were the highest human levels reported anywhere in the world at that time.[19] Later, the authors expanded their investigation to additional adipose and serum samples collected in the late 1990s from San Francisco Bay Area women participating in a breast cancer study and in a reproductive study. The results confirmed the earlier findings, with median levels 3 to 10 times higher than those reported from Europe. In contrast, the authors noted that PBDEs were not measurable in any of 420 archived serum samples collected in the 1960s from San Francisco Bay Area women participating in a study of child development, suggesting that the PBDE contamination in the region is of more recent origin.

Californians' high PBDEs levels may stem from a variety of sources. California has the

Following Europe on E-Waste?

The countries of the European Union (EU) have already begun to tackle the fast increasing waste stream of electrical and electronic equipment, and California's high-tech manufacturers and legislators are watching.

In 2002 and 2003, the EU enacted strict rules governing the use of toxic materials in electronic equipment and the recycling of this equipment. Known collectively as the Waste Electrical and Electronic Equipment (WEEE) Directive, these rules mandate the substitution of various heavy metals (lead, mercury, cadmium, and hexavalent chromium) and brominated flame retardants (PBDEs or polybrominated biphenyls (PBBs)) in new electrical and electronic equipment sold beginning July 1, 2006. Manufacturers are also required to take such equipment back from consumers, free of charge, for recycling at the end of its useful life.

The new EU regulations are changing the electronics market. U.S. exporting companies, many of them headquartered in California, are expected to adopt EU standards in all of their products, not just those sold in Europe. In what is surely just the beginning of atrend, California-based Intel, the world's largest chipmaker, has already introduced a lead-free flash memory program in Japan.[20]

Because they are such a heavy users of chemicals, California's high-tech companies—and several state lawmakers—are watching the development of another European chemical regulation. When the EU chemical directive known as REACH comes into effect, companies that make or import chemicals in the EU will need to register their chemicals and demonstrate that they are safe; a number of PBTs, carcinogens, and other very hazardous chemicals will likely be outlawed. In 2004, then-Senator Byron Sher and Assemblyman John Laird requested a report on chemical policy options from the University of California. Two university centers and the state Department of Health Services are collaborating on this assessment of chemicals policy models that may be relevant to California, and a final report is planned for release in 2005.[21] This represents a courageous step towards comprehensive policy reform and away from the agonizingly slow battles fought one chemical at a time.

most stringent flame retardant standards in the United States, and some researchers believe that PBDEs migrate out of everyday products in our homes, such as foam cushions and electronic equipment. Household dust in California and other states has been found to contain PBDEs, and a 2004 study of effluent and sludge collected from a wastewater treatment plant in Palo Alto, California were found to contain PBDEs of both the penta and deca formulation.[22] Evidence that computers in peoples' homes and workplaces could be a significant source of exposure to PBDEs is presented in the first nationwide testsof dust swiped from computers. The Computer Take-Back Campaign and Clean Production Action gathered 16 samples of dust from the central processing units (CPUs) and monitors of computers in university computer labs, legislative offices, a children's museum, and other public sites in eight states. The study found PBDEs on every computer sampled, particularly deca-BDE— one of the most widely used fire retardant chemicals in the electronics industry.[23]

As the evidence of rising PBDE levels in the state and its residents piled up, California lawmakers took action to stem the tide. In August 2003, the state became the first to enact legislation banning PBDEs when then-Governor Gray Davis signed the landmark legislation at a ceremony in a Santa Monica health clinic. The new law prohibits the manufacture, processing, or sale in California of any product or a flame-retarded part of a product, containing more than 0.1% pentaBDE or octaBDE. (The law has no effect on deca.) The original bill was to take effect in 2008, but

subsequent legislation moved the phaseout date up to January 1, 2006.

Additional legislation to implement the PBDE ban is now pending in the California legislature. Assembly Bill 263 would require the state Department of Toxic Substances Control to administer and enforce the previously enacted ban on PBDEs. It would authorize the assessment of civil penalties for violations, and would require the department to deposit revenues from civil penalties in a Penalty Account to be created in the State Treasury. The bill would authorize the department to expend the money in this account to implement these provisions.[24]

Though it fell short of banning the widely-used deca-BDE, the California law was the first in the nation to impose any restriction on PBDEs. It has since had a profound ripple effect. Legislators in Hawaii, Maine, Michigan, New York have all enacted similar laws. PBDE legislation has also been introduced in Connecticut, Illinois, Maryland, Minnesota, Montana, Oregon, and Washington in 2005.[25]

BIOMONITORING IN CALIFORNIA

The studies that revealed high PBDE levels in California women are an example of human biological monitoring, or biomonitoring. Biomonitoring measures "pollution in people," toxic substances in the human body, for example, in blood, urine, hair, or breast milk. It can shed light on which environmental pollutants people are exposed to and the levels at which they are exposed. It can also tell policymakers and health professionals if some groups of people are more highly exposed than the general population, and whether public health policies and regulatory programs are working to reduce exposure.

While small, isolated biomonitoring efforts like the PBDE studies mentioned above offer a glimpse, large-scale biomonitoring programs by governments are far more scientifically revealing and authoritative. The federal Centers for Disease Control and Prevention (CDC) began reporting on a nationwide biomonitoring program in 2001 with the publication of the first National Report on Human Exposure to Environmental Contaminants. CDC had been measuring American's exposures to lead and passive tobacco smoke for years, but the 2001 report for the first time provided information about the levels of 14 additional chemicals pollutants in a nationally representative sample of the American population. The report was expanded in 2003 to include more chemicals, and the 2005 report is expected to be even more comprehensive. To date, however, the national reports have not included data by state, and no state yet has its own statewide biomonitoring program.

California has attempted to change that. Using CDC planning funds, the state developed the California Biomonitoring Plan in 2003. The Plan identifies pesticides, other persistent and non-persistent organic pollutants, and heavy metals as priority chemicals for biomonitoring, stating that these are the environmental pollutants of greatest concern and interest to community stakeholders, public health officials, and health researchers. POPs and PBTs are good candidates for biomonitoring because they persist in the body for so long, allowing researchers to measure cumulative exposures. The California Plan specifically named PBDEs, mercury, and lead as priority chemicals.

To date, California has not received much-needed additional funds from CDC to implement its plan, so NGOs in the state have looked to the legislature for the impetus and funding to proceed with statewide biomonitoring. In 2004, the state Senate passed SB1168, the Healthy Californians

Biomonitoring Program, with the support of more than 50 diverse organizations including the California Medical Association, California Nurses Association, American Federation of State, County, and Municipal Employees (AFL-CIO), Latino Issues Forum, and Women's Foundation of California. To pay for the program, this bill originally proposed a fee on manufacturers and distributors of a short list of toxic chemicals. This provision was amended before the bill faced the state Assembly and replaced with a combination of private and public funding. Even with this concession, the bill narrowly failed a vote in the Assembly's Health Committee as a result of intense opposition from chemical industry groups.

A pared-down version of the bill was reintroduced in February 2005.[26] The bill would establish a community-based, multi-stakeholder biomonitoring system led by the state Department of Health Services in collaboration with the California EPA. However, the new proposal does not include any chemical industry fees, so alternative funding will be needed to support the system. With the California state budget in crisis and Governor Schwarzenegger pushing for spending cuts, state funding for a biomonitoring program will be hard to come by. Still, the Governor's office has indicated initial support for biomonitoring, and advocates in the state are hopeful that money can be found so that California's biomonitoring plan can be put into action.

LESSONS FROM CALIFORNIA'S PROGRESS

Long at the forefront of environmental health protection, California has shown in recent years that it intends to be a driving force in the ongoing effort to eliminate POPs and PBTs. As this spotlight has shown, it is already doing so by providing a model for legislative action in other states on lindane and PBDEs, and by using its sizable market to create change in key industries. At $2 trillion per year, California's economy is the sixth largest in the world, making the state a powerful market driver. By leading the charge for PBDE-free products, California is forcing nationwide change even in the absence of federal action. California's PBDE legislation has provided a model that is now being copied—or exceeded—by no fewer than 11 states across the U.S. Similarly, just three years after California's pharmaceutical lindane ban took effect, similar legislation is moving forward in two states and being considered in several others. The successful implementation of California's law, and the fact that lindane hasn't been missed by the state's physicians and pharmacists, prove that a larger ban is possible.

While California is driving early action on presumed future Stockholm Convention POPs like lindane and PBDEs, it is also working to improve the world's scientific understanding of chemical exposures. In pushing for approval of funds and a commitment to proceed with the nation's first statewide biomonitoring

program, Californians are helping to contribute to the scientific community's understanding of chemical exposures and, ultimately, their effect on human health. Because California's future biomonitoring program will focus in large part on POPs and other PBTs, it will someday add to the Stockholm Convention's scientific evaluation process, providing first-hand information about exposures in the western United States.

Even while California is leading other states and countries in these important ways, it is important to note that it is also looking beyond its borders for new ideas and models for POPs policy. California's PBDE ban was the first in the nation, but it was sparked by a similar ban in the European Union. By looking beyond the United States to find promising and cutting-edge policy models—on PBDEs, electronics waste, and the larger issue of chemical policy—California is ensuring that the U.S. isn't left behind. In light of current federal stalemate on these issues, this is perhaps California's most important contribution.

STATE CONTACTS

California Environmental Protection Agency
Department of Pesticide Regulation
(916) 445-4300
Department of Toxic Substances Control
(916) 324-1826
Office of Environmental Health Hazard Assessment
(916) 324-7572, (510) 622-3200
http://www.calepa.ca.gov/

California Department of Health Services
1-800-735-2922, 1-888-877-5379
http://www.dhs.ca.gov

Pesticide Action Network North America
49 Powell St., Suite 500
San Francisco, CA 94102
Phone (415) 981-1771
Fax (415) 981-1991
http://www.panna.org

Silicon Valley Toxics Coalition
760 N. First Street
San Jose, CA 95112
Phone: (408) 287-6707
Fax: (408) 287-6771
http://www.svtc.org

Center for Environmental Health
528 61st Street, Suite A
Oakland, CA 94609
Phone (510) 594-9864
Fax (510) 594-9863
http://www.cehca.org

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Washington

Spotlight on PBTs, Mercury, and Seattle

Located in the lush Pacific Northwest, Washington State is a place of great natural beauty and a kind of microcosm of the United States. Nicknamed the Evergreen State for its 22 million acres of forests[1], Washington's past and its future are closely tied to natural resources through lumber and pulp production, farming, fishing, ranching, and tourism. Apples and other fruit crops dominate the rural eastern half of the state, along with cattle and wheat. Along the southern border, the powerful Columbia River, which has played a crucial role in the life of Indigenous Peoples for centuries, now passes through agricultural land, past nuclear weapons plants and paper mills, powering industries and cities. Major corporations such as Microsoft, Boeing, and Starbucks present a global face of Washington recognized around the world.

Washington has a history of environmental awareness and protection. In 1976, Washington became the first state to adopt a coastal management program. The following year, Washington's then-U.S. Senator Warren Magnuson was instrumental in passing federal legislation that effectively banned oil supertankers from Puget Sound. Many of Washington's environmental concerns today continue to center on Puget Sound, the complex estuary that dominates the eastern part of the state. The Sound and its 2,000 miles of shoreline provide vital habitat for marine mammals like the beloved orca (killer whale), seven species of salmon, waterfowl, terrestrial wildlife, and more than six million people—all of whom are increasingly threatened by POPs and PBTs.

POPS AND PBTS IN WASHINGTON STATE

As cities around Puget Sound grew and prospered in the 1950s and 60s, human activities left chemical contaminants buried in the sediments. Pulp mills, chemical factories, smelters, shipyards, oil refineries, and other industries discharged dioxins, PCBs, and other persistent pollutants into the Sound for years before federal and state governments placed controls on such discharges. More recently, consumer products containing flame retardants have released a new generation of persistent toxic pollutants into Washington's environment. Today it is clear that persistent pollutants are taking a serious toll on Washington's wildlife and citizens. The levels of PCBs in Puget Sound harbor seals were shown in 1996 to be approximately three times higher than the PCB concentrations of their counterparts inhabiting the Strait of Georgia, British Columbia.[2] Current PCB levels in Puget Sound orcas—known as the Southern Resident orcas—make them among the most contaminated marine mammal populations in the world, and recent research shows PBDE levels two to 10 times higher than those found in other whales around the world.[3] Rapid declines in these orcas' numbers since the mid-1990s, coupled with public pressure, prompted the National Marine Fisheries Service in 2004 to propose the Southern Residents as "threatened" under the federal Endangered Species Act.[4] Marine biologists believe the high levels of PCBs and other POPs is at least

partly to blame for the dwindling numbers of local orcas.[5]

In 2000, a team of federal and state biologists assayed POPs levels in Puget Sound salmon. Although several studies had examined contaminants in killer whales, little data existed to compare contaminants in salmon from Puget Sound with those in other locations. The researchers found that Chinook salmon in Puget Sound contained lower levels of DDT and hexachlorobenzene than fish from other locations, but their PCB levels were three times higher than those tested in other areas of the Pacific coast. They also contained higher concentrations of PBDEs.[6] PCB concentrations were highest in Chinook salmon collected in November, assumed to be year-round residents of Puget Sound.

In 2003, Washington issued 18 fish and shellfish consumption advisories due to high levels of dioxins, PCBs, mercury, or DDT, including a statewide fish consumption advisory for mercury.[7] In addition, 244 water segments in the state of Washington exceed "surface water quality criteria" for nine PBTs.[8] Fish and shellfish contamination has been of particular concern to Native American populations in the state of Washington, many of whom commonly practice subsistence harvesting of fish and shellfish from contaminated areas. The Swinomish Indian Tribal Community recently launched the Bioaccumulative Toxics in Native American Shellfish Project (BTNAS) to address the potential human health risks associated with PBTs including PCBs, dioxins and furans, heavy metals, organotins, chlorinated pesticides, and poly-aromatic hydrocarbons.[9]

POPs and PBTs are present in more than just Washington's fish and wildlife. A recent study of household dust in seven states, for example, found DDT, organotins, and six types of PBDEs in dust collected from 10 homes around the state of Washington. Of particular interest are the PBDE levels found in the Washington homes in this study. For three types of PBDEs, the Washington levels were higher than the corresponding levels in any of the other six states. Levels of one penta-BDE were more than one and a half times higher than levels in the next highest state (California).[10] These results suggest that Washington residents may be exposed to high levels of these POPs in their homes. A 2004 study of 40 mothers from Washington, Oregon, British Columbia, and Montana found PBDEs in the breast milk of every woman tested. Overall, the levels of PBDEs in the study were 20 to 40 times higher than levels found in European and Japanese women.[11]

A 2004 study of 40 mothers from Washington, Oregon, British Columbia, and Montana found PBDEs in the breast milk of every woman tested. Overall, the levels of PBDEs in the study were 20 to 40 times higher than levels found in European and Japanese women.

WASHINGTON STATE TACKLES PBTS

Even before the international POPs treaty was negotiated, Washington State had recognized POPs and other PBTs as a class of pollutants that must be eliminated in order to protect human health and the environment. As a result of an extensive lobbying campaign by a statewide coalition of environmental organizations, the state Department of Ecology (known in the state as "Ecology") in 1998 announced its intention to develop and implement a groundbreaking strategy to phase out existing sources of persistent, toxic chemicals, clean up historical sources, and prevent new sources.[12] As a holistic, precautionary, cross-media approach to this class of chemicals, Washington's PBT Strategy represented a radical departure from the way that government agencies have typically addressed toxic pollution in America.

In the 2000 legislative session, state lawmakers directed the Department to develop and submit for review its proposed long-term PBT Strategy. Ecology unveiled the Strategy in December of that year. Citing the precautionary principle, the document explained the need to reduce PBTs, promoted the need for dialogue among government agencies and stakeholders, and requested funding for implementation. It also included a "starter" list of PBT chemicals: mercury, PCBs, benzo(a)pyrene, dioxins and furans, DDT, aldrin/dieldrin, chlordane, hexachlorobenzene, and toxaphene.[13] Interestingly, all but mercury and benzo(a)pyrene are on the initial "dirty dozen" list of the Stockholm Convention on POPs.

The Washington State PBT Strategy proposed an initial process for screening and prioritizing additional PBTs, and recommended chemical-specific action plans for these priority chemicals. In response, the state legislature in its 2001 session approved the first $800,000

Ecology's Draft PBT Criteria and Working List of PBTs[14]

The Washington Department of Ecology originally proposed a single set of criteria for defining a chemical as a PBT in Washington. To be considered a PBT, the chemical would have to meet each of the criteria—for persistence, bioaccumulation, and toxicity to humans or plants and animals. Importantly, both the chemical and its degradation products would be considered when determining whether these criteria are met. In other words, if a chemical did not meet the criteria for a PBT but degrades into chemicals that would meet these criteria, the parent chemical would be considered in the development of a chemical action plan for those derivative chemicals.

In some cases, Washington's initial PBT criteria are actually more inclusive that the criteria in the Stockholm Convention, resulting in a longer list of chemicals. For example, Ecology proposed that a chemical be considered persistent if its half-life is 60 days or more in water, soil, or sediments. By contrast, the Stockholm Convention's persistence criterion is an equivalent two months in water but a much longer six months in soil or sediments. Similarly, a chemical could be considered a PBT in Washington if its bioconcentration factor or bioaccumulation factor is greater than 1000, while the corresponding Stockholm Convention criterion is greater than 5000. Because of these differences, more chemicals would likely be identified as PBTs in Washington than will be named POPs under Stockholm.

However, the state legislature has required that Ecology promulgate its criteria and list of PBTs in an official rule, and the criteria system has become more complicated in the course of the rulemaking. The draft rule now contains a second set of criteria (with a bioconcentration factor greater than 2000 and a half-life of 180 days) that an identified PBT must meet in order to qualify for a Chemical Action Plan. Advocates in the state are seeking to eliminate this second step, which they feel unnecessarily limits the list of potential PBTs for action.

for Ecology to begin implementing the Strategy. With this mandate and additional legislative oversight and funding, Ecology created a policy document containing a set of criteria for identifying PBTs, and used these criteria to develop a working list of PBT chemicals. (See sidebar)

Mercury Reduction under the PBT Strategy

Estimating that 3,800 to 5,000 pounds of mercury are released into the state's environment each year from human sources, Ecology determined that mercury posed the greatest and most immediate threat to public health and the environment in Washington, and named mercury its first priority PBT. As part of its ongoing oversight of the state PBT Strategy, the legislature in 2002 directed the department to work with the state Department of Health to develop a plan to reduce and eliminate sources of mercury pollution in Washington. The final Mercury Chemical Action Plan (MCAP) was unveiled in early 2003.[15] Its stated dual goals are to virtually eliminate the use and release of human-caused mercury in Washington, and to minimize human exposure to mercury.

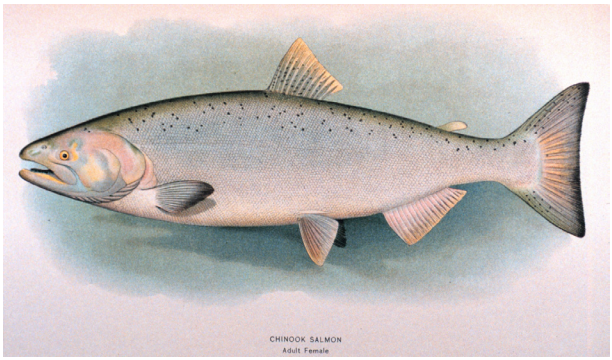
The nearly 200-page MCAP contains a variety of recommendations for short-term action for many mercury sources where known, cost-effective solutions exist. The action plan expresses a preference for pollution-prevention strategies (avoiding the use of mercury) over pollution-control strategies (minimizing the release of mercury to the environment). It also indicates that more detailed implementation plans will be developed in consultation with interested parties. In some cases, the MCAP notes, a key component of the more detailed plans will be allocating responsibility for costs involved among affected parties—a nod to the "polluter pays" principle.

Recommended actions in the MCAP include the development of voluntary programs with the Washington State Hospital Association and the Washington State Dental Association to encourage adoption of mercury-reduction policies by their members, and efforts to work with schools, universities, and labs to eliminate or reduce the use of mercury. The MCAP contemplated a prohibition on the incineration of fluorescent lamps and regulatory and voluntary programs for removing convenience mercury switches from automobiles. It also sought legislative action to ban a variety of mercury-containing products.

In response, the state legislature in 2003 passed the Mercury Education and Reduction Act. This legislation requires labeling of mercury-containing fluorescent lamps sold in the state, and bans the sale and use of a host of mercury-containing products, including automotive switches, thermometers (except by prescription), blood pressure devices, and novelty products. It also bans the use of mercury in school science labs, requires the state department of health to develop a plan for public education about proper mercury disposal, and requires the Department of Ecology to petition the U.S. EPA to create a national mercury repository site.[16]

An Action Plan for PBDEs

Given the increasing U.S. and international attention to PBDEs in the environment and in people's bodies, Washington has ratcheted up its efforts to phase out these chemicals under



the PBT Strategy. In January 2004, then-Governor Gary Locke issued his first Executive Order of the year directing Ecology to "move forward immediately" in developing a chemical action plan for PBDEs, and to begin implementing the plan no later than July 1, 2005.[17] The legislature seconded the need for a PBDE action plan. The resulting Interim Chemical Action Plan for PBDEs recommended that the legislature prohibit the manufacture and sale of new products containing penta- and octa-BDE in Washington State by July 2006. Moreover, it recommended that Ecology and the Department of Health develop a proposal to ban appropriate products containing deca-BDE, with recommendations by December 2005.[18]

Based on this recommendation and building on the successful Mercury Reduction Act, HB 1488 and its Senate counterpart SB 5515 were introduced in January 2005. The bill proposed a ban on the manufacture and sale of products containing PBDEs by July 2006—with an exemption process for deca- where no reasonable, safer alternative is available. The bill also provided for Ecology to study other actions needed to address PBDE contamination, including labeling and proper waste management of PBDE-containing products. Finally, it would have required state agencies to lead by example, purchasing PBDE-free computers, electronics, carpeting, and other products.[19]

This bill had the support of many in the state legislature, but the clock ran out on the 2005 session before it could be passed. Though the bill is dead until the legislature reconvenes in 2006, important gains were made as it moved through the process. Most strikingly, in the course of the debate lawmakers shifted from discussing *whether* they should ban deca-, and instead focused on when and how the ban would be implemented. This appears symbolic of an emerging recognition in Washington that chemicals that qualify as PBTs must be banned.

Additional Elements of Washington's PBT Strategy

In addition to the specific actions being pursued on mercury and PBDEs, several other elements of Washington's PBT Strategy are notable. First, the state has acknowledged that simply developing a strategy document is insufficient to demonstrate a commitment to PBT elimination. Former Governor Locke's 2004 Executive Order expressly directs the Department of Ecology to "continue using its existing programs and authorities to reduce persistent, toxic chemicals over time." So the Washington State approach to PBTs couples planning with action.

The state is also putting its money where its mouth is with regard to PBTs. Under the 2004 Executive Order, the Washington Department of General Administration's Office of State Procurement is required to make available for purchase and use by all state agencies equipment, supplies, and other products that do not contain persistent, toxic chemicals unless there is no feasible alternative. If a non-PBT product is not available, preference is to be given to the purchase of products containing the least amount of PBTs.[20]

Another noteworthy element of Washington's PBT Strategy is its emphasis on precaution. Echoing language in the Stockholm Convention, Washington's January 2005 draft PBT rule states that a "lack of full scientific

Seattle PBT Resolution and Reduction Strategy

The groundbreaking action by the state of Washington to address PBTs as a class of chemicals to be phased out has served as a model for other jurisdictions. Most notably, within Washington's own borders the city of Seattle is following the state's lead. Seattle is Washington's largest city, home to more than half a million residents and a thriving business community. It is significant, therefore, that the city has prioritized the issue of PBTs.

In July 2002, the Seattle City Council adopted Resolution 30487 declaring "persistent pollution prevention a high priority for action to reduce risk to public and environmental health."[22] As with the state purchasing directive, the Seattle resolution directs city departments, offices and agencies to consider the presence of PBTs and the potential for their release during production or disposal when making purchasing decisions. In an effort to weigh economic feasibility and protection of human health and the environment, the resolution established a 10 percent cost preference for non-PBT products. In other words, the use of an alternative product will be considered economically feasible if its cost is within 110% of the full costs of the PBT product of concern. By encouraging the development of new products, Seattle believes that its purchasing policies can help to encourage market transformation and drive costs down.

To implement the PBT resolution, Seattle has adopted an initial list of PBTs that includes mercury, cadmium, lead, PCBs, PAHs, the fungicide PCNB, and dioxins/furans. Using this list, it has created a detailed source inventory as a first step toward phasing out these chemicals in city purchasing.[23] The inventory includes products such as paper, pentachlorophenol-treated wood, mercury switches in the city fleet's vehicles, and PVC building materials and office supplies. It appears that the purchasing policy is working. Environmental groups applauded a recent decision by Seattle's Parks and Recreation department to replace 34,000 feet of plastic drainage pipe at a large sports field with pipe made from safer, non-PBT high density polyethylene, or HDPE.[24] The city cited its PBT resolution and a study by the City of San Francisco that indicates far less toxic pollution and much easier recycling with HDPE over PVC piping.

Seattle is also seeking to eliminate PBTs from pesticide use on city property. The city's pesticide reduction strategy prioritizes the phaseout of persistent pesticides as well as those contaminated with dioxin.[25] The city has also established six pesticide-free parks and an additional eight pesticide-free mini-parks as a public demonstration of alternatives to toxic pesticide use in landscape management.[26]

consensus should not be used as a justification for delaying reasonable measures to prevent or minimize harm to human health or the environment."[21] The draft rule and other Strategy documents also emphasize the important principles of public involvement and coordination with state and local governments, Native American tribes, and other interested parties.

LESSONS FROM WASHINGTON'S PROGRESS

Perhaps no other state's experience with POPs and PBTs so closely parallels the Stockholm Convention as Washington's. Its groundbreaking 1998 PBT Strategy actually predated the international treaty, and offered an important model for addressing this class of chemicals. Now, with a longer potential list of priority PBT chemicals and a more inclusive set of criteria for designating PBTs, Washington is blazing a trail that other states and the international community can watch and learn from. Though there is much work left to be done—including fuller implementation of the Mercury Chemical Action Plan and the passage of PBDE legislation—Washington has nevertheless taken a number of important steps toward the broad elimination of persistent toxic chemicals.

One particularly interesting lesson in Washington's experience to date is the potential for state and local-level synergy on PBTs. In some instances, local actions have led to larger statewide action. The state's Mercury Chemical Action Plan, for example, notes that many of the mercury-reduction efforts in Washington have taken place at the local level, with at least six counties and the cities of Seattle, Spokane, Tacoma, and Vancouver having already conducted local mercury-reduction programs. In another instance, however, the state's PBT-free purchasing policy appears to have trickled down to the local level in Washington's largest city, Seattle. Such local and state cross-pollination adds value to both efforts.

The emphasis of both the state and Seattle governments on purchasing is another important lesson. State and large city governments often have enormous purchasing power. Their many agencies need products of all kinds—from paper to office furniture to pest-control products and services—just to run their day-to-day operations. By implementing its policy commitment through its purse strings, Washington is taking a simple step that can transform the marketplace for alternatives to PBTs.

Finally, Washington's experience offers a positive example of the power of people to drive change on POPs and PBTs. The fact that the state's PBT Strategy exists at all is due in large part to the concerns of Washington residents about the impact of these chemicals on their environment and their health. Communicated by an effective statewide coalition of environmental and health groups, directly to decision-makers including the head of the Department of Ecology and the Governor, these concerns ultimately drove and continues to drive the government to act. This experience offers hope of a POPs-free future to communities across the country and around the world.

STATE CONTACTS

Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504
http://www.ecy.wa.gov

Washington Toxics Coalition
4649 Sunnyside Ave N Suite 540
Seattle, WA 98103
Phone 206.632.1545
www.watoxics.org

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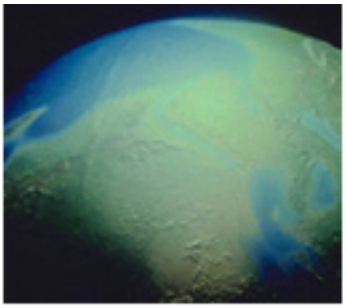
Conclusions



The United States is not yet a party to the Stockholm Convention on POPs and the outlook for U.S. ratification and full implementation is unclear in the near term. Fortunately, state governments across the country are finding ways to act on these dangerous chemicals. Americans from Alaska to Arkansas and Maine to Montana are concerned about POPs and PBTs in their communities, their homes, and their own bodies. Citizens from coast to coast are demanding serious efforts to reduce and eliminate these pollutants.

By profiling just three U.S. states, this report provides a snapshot of some of the actions underway at the state and local level. We have left out many important efforts in a large number of states and localities. Even so, the picture that emerges is of a growing nationwide movement to end POPs and PBT pollution.

Considering this momentum, we draw the following conclusions:

U.S. STATES ARE AT THE VANGUARD OF TACKLING POPS AND PBTS.

The federal government, once a world leader, is clearly lagging behind the states in addressing POPs and PBTs. The twin federal laws that regulate these chemicals, TSCA and FIFRA, are outdated and ineffective. Congress shows little interest in giving the laws sharper "teeth" or making the regulatory framework more relevant to our current understanding of chemical threats. What's more, the Environmental Protection Agency has neglected opportunities to take action on POPs and PBTs, dragging its feet on long-term action plans for mercury, dioxin, and other well-characterized pollutants. In sharp contrast, states such as California, Maine, Washington, and others are moving forward with plans and concrete actions to identify, reduce, phase out, and ban products containing these hazards.

STATE PROGRESS PARALLELS THE GLOBAL POPS MOVEMENT.

Washington's PBT Strategy—with its scientific criteria for identifying PBTs for action—is perhaps the most obvious example of this. But there are other similarities between state actions and the Stockholm Convention. The Convention is, at its heart, a precautionary, prevention-oriented, collaborative instrument, and actions in the states have repeatedly echoed that spirit. Maine, for example, reflected the precautionary approach embodied in this global treaty when it acted to ban deca-BDE even before conclusive proof that it degrades in the environment to the more toxic penta-BDE. The city of Seattle utilized material substitution, a dioxin-prevention strategy urged in the treaty, when it opted for polyethylene alternatives over PVC pipes for a public park project. California eliminated lindane, a likely future Stockholm POP, long before the international review committee will formally consider it. In the northeast, in particular, states are acting collectively to

reduce mercury exposure in their region—a microcosm of international action.

STATE ACTIONS TO REDUCE CHEMICAL THREATS MUST BE RESPECTED AND DEFENDED.

Clearly, states like Maine, Washington, California, and others are doing important, ambitious work to reduce the threat posed by POPs and PBTs within their borders. But far from encouraging this trend and seeking state and federal cooperation on POPs, previous drafts of Stockholm Convention implementing legislation in Congress proposed *preempting* state POPs regulations. This is contrary to the principles of federalism and to the bedrock obligation to keep Americans safe from harm. Whether or not the United States ratifies the Stockholm Convention, states should be free to set their own public health and environmental standards. Efforts to regulate POPs and PBTs at the state level must not be limited to the lowest common denominator; federal environmental laws establish floors, not ceilings.

U.S. POLITICAL WILL IS NEEDED FOR GLOBAL POPS SUCCESS.

Like U.S. states, Parties to the Stockholm Convention around the world are moving forward on POPs elimination in the absence of U.S. leadership. Even without the U.S. at the table, there is much these countries can do to establish rules for participation and decision making under the POPs treaty, review nominations for additional POPs chemicals, and ensure that national implementation plans are put into action. Ultimately, however, the goal of global POPs elimination will not be achieved unless all nations—especially major players like the United States—participate fully and in good faith.

PEOPLE AND COMMUNITIES ACROSS THE COUNTRY MUST BE HEARD.

U.S. experience, expertise, and commitment must be a part of eventual success in eliminating POPs and PBTs. The U.S. EPA has a long history of regulating POPs, and the American chemical industry accounts for nearly one-third of global chemical production. What the United States lacks is the political will to take up the important work before us. Americans in every state should demand action and ensure that the U.S. fully and faithfully joins the Stockholm Convention as soon as possible. Take a minute to add your voice to the chorus of Americans demanding prompt action in Congress. Visit the website of US POPs Watch at www.USPOPsWatch.org and send a message to your congressional representatives. Support this campaign and allied organizations that are on the front lines of the battle against POPs.