

Great Lakes Regional Collaboration PBT Group

I. Problem Statement

While persistent toxic substances (PTS) have been significantly reduced in the Great Lakes over the past 30 years, PTS continue to be present in the Great Lakes ecosystem at levels high enough to warrant fish consumption advisories and to pose threats to human and wildlife health. The continuing presence of these PTS is the result of atmospheric deposition, release from contaminated bottom sediments, releases from various industrial processes, releases from non-point sources, and continuous cycling of PTS within the Great Lakes themselves. Significant sources of PTS must be brought under adequate control in order to restore the Great Lakes ecosystem. More recently, researchers have documented the presence of new chemicals of emerging concern that may also pose a threat to the Great Lakes Basin Ecosystem. Characteristics of these substances, such as sources, fate, transport, persistence, bioaccumulation, and toxicity, must be better understood.

II. Goals

Accomplishing the following goals is necessary to establish and maintain chemical integrity within the Great Lakes Basin Ecosystem, as called for in the Great Lakes Water Quality Agreement.

- Prevent the release of toxic substances in toxic amounts, and virtually eliminate the release of any or all persistent toxic substances to the Great Lakes Basin Ecosystem.
- Reduce environmental levels of toxic chemicals to the point that all restrictions on the consumption of Great Lakes fish can be lifted.
- Significantly reduce exposure to persistent toxic chemicals from reservoir sources by relying on both aggressive source remediation and pathway intervention.
- Protect the general public from toxic substances through effective outreach and education, including protective fish consumption advice throughout the Great Lakes Basin Ecosystem.
- Protect the health and integrity of wildlife populations and habitat from adverse chemical and biological impacts associated with the release of persistent toxic substances.
- Identify and fill the gaps in our scientific understanding that are central to our ability to effectively manage the risks of toxic substances found in the Great Lakes.
- Prevent degradation of high quality waters in the Great Lakes Basin from toxic substances.

III. Current PTS Programs

There are a diverse set of issues associated with management of PTS in the Great Lakes Basin Ecosystem, and a variety of programs that address these. With regard to regulatory programs, there is the regulatory review and approval of substances in commerce through the Toxic Substance Control Act (TSCA), regulations governing releases of PTS to the environment through permitting programs such as National Pollutant Discharge Elimination System (NPDES) and Maximum Available Control Technology (MACT), proper disposal of PTS waste through the Resource Conservation and Recycling Act (RCRA), and remediation of PTS contaminated soils and lake bottom sediments through Superfund and RCRA.

Supplementing regulatory program efforts are a number of new and innovative voluntary programs in various stages of development and implementation at Federal, State and Local levels that seek to reduce the generation of PTS in various industrial sectors. These include Design for the Environment, Green Chemistry, Green Suppliers Network, and Environmentally Preferable Purchasing, and the State-run programs that provide pollution prevention technical assistance to businesses.

With respect to education and outreach, there are a number of programs that provide advise to the public about lifestyle choices to protect their own health and to help protect the environment, such as state fish consumption advisories. Finally, there are information and assessment programs, which include monitoring, modeling, and toxicological research, to inform Great Lakes managers about sources and movement of PTS and their effects.

There are also unique Great Lakes-specific, binational programs that engage a collaborative multi-stakeholder decision-making process to address PTS issues at local, lake-wide, and basin-wide levels. These programs include:

- *Remedial Action Plans* to address beneficial uses impaired by PTS in Areas of Concern,
- *Lakewide Management Plans* for the reduction of PTS loads in each Great Lake,
- *Great Lakes Binational Toxics Strategy*, which sets goals and implements reductions for 12 PTS chemicals across the Great Lakes, and
- *State of the Lakes Ecosystem Conference* that tracks progress towards achieving chemical integrity and guides reduction actions.

A full discussion of current programs may be found in appendix X.

IV. Building on Successful Existing Programs and Considering New Approaches

While much progress has occurred and remains possible through current programs, advances in science and chemical management policies point to alternative approaches that could enhance the effectiveness of managing PTS in the Great Lakes region.

Scientific advances in predicting the movement of PTS through the environment, toxicity testing, and assessing exposure, among others, enhance our ability to take a more preventative approach—to identify potentially harmful chemicals before they enter commerce and identify less harmful alternatives.

Industries are more capable today of using sustainable practices to provide products and services with reduced environmental impact. Improved education and outreach programs are needed to convey PTS risks and ways citizens can reduce their contributions to PTS releases.

Continuing to adopt new approaches to chemical management combined with enhanced implementation of existing activities will help Great Lakes stakeholders more effectively deal with PTS contamination.

V. Key Recommendations

The recommendations below are guided by a number of important principles. Historically, Great Lakes PTS reduction efforts have served as a model for statewide, nationwide, and international efforts. The collaborative efforts within the GL Basin provide a strong foundation for addressing PTS into the future. PTS reduction requires both regulatory and non-regulatory programs to be adequately resourced so that they perform as they are intended. Non-regulatory approaches can sometimes achieve results quickly and are encouraged to the maximum extent practicable.

Where non-regulatory approaches are not able to achieve desired results, regulatory approaches must also be considered. While in-basin efforts are critical to the restoration and maintenance of the Great Lakes, significant amounts of PTS are delivered to the Great Lakes via the atmosphere, and reducing PTS loads will require reductions in emissions outside the Great Lakes.

Key recommendations are presented below in two major categories:

- 1) Reduction activities to continue to remove PTS from the GL Basin; and
- 2) Information and assessment activities to help environmental managers make strategic decisions about how to manage risks presented by PTS in the Great Lakes Basin.

A. Reduction Actions

i. National

Programs that affect entire states or the nation are also important to the protection and restoration of the Great Lakes Basin Ecosystem.

- Support existing statutory programs that address PTS permitting, compliance and enforcement.

Result: Use existing authorities to further reduce levels of PTS in the Environment.

- Discontinue use of PCB electrical equipment and hydraulic fluids, consistent with the Stockholm Convention.

Result: Reduce PCB inputs to the Great Lakes Basin. EPA Region 5 (Great Lakes region) has more remaining in-service PCB transformers than any other Region.

- Promote, improve, and expand national non-regulatory pollution prevention programs such as Green Chemistry and Engineering, Design for the Environment, the Green Suppliers Network, and Environmentally Preferable Purchasing.

Result: Limit the introduction of new PTS into commerce by targeting PTS in manufacturing and the supply chain.

- Assure adequate funding for remediation of Superfund Sites and other legacy (i.e., historically contaminated) sources both within and outside the Great Lakes Basin.

Result: Reduce releases from key sources of PTS to the Great Lakes Basin.

ii. Great Lakes Basin

In the Great Lakes Basin, ongoing sources of PTS such as household waste burning and contaminants from wastewater treatment plants must be systematically addressed. This requires adequate infrastructure and funding of existing programs. It is critical to broaden the scope of pollution prevention activities targeting PTS throughout the Great Lakes Basin so that releases of new PTS can be prevented. Coordination of such programs between federal, state, tribal, local and non-governmental parties must be strengthened.

- Ensure collection and proper disposal of household garbage in all Great Lakes communities.

Result: Prevent burning, burying, and dumping of solid waste. Trash burning is the principle source of dioxin emissions in the Great Lakes Basin.

- Ensure that household hazardous waste collection and recycling programs, including electronic waste, are available in all Great Lakes communities.

Result: Reduce PTS/hazardous waste releases to the Great Lakes Basin.

- [Note: OW working on this rec.] Institute a Great Lakes Basin-wide surveillance program to assess the presence and significance of all contaminants of concern in final wastewater treatment plant effluent, sewage sludge, and affected tributaries. For currently unregulated contaminants found in wastewater effluent, sewage sludge, or tributaries that pose threats to human health or the environment, develop and implement treatment technologies, effluent limit regulations, and pre-discharge reduction programs.

Result: Systematically assess unknown risks and reduce PTS releases from wastewater treatment discharge.

- State EPAs/Mercury Air Rule Options (placeholder)
 - GLB Trading Scheme
 - State rules with deeper cuts
 - Meeting to determine how cuts will be made

Result: Reduce a key source of mercury deposition in the Great Lakes Basin.

- Develop a Great Lakes Pollution Prevention and Education Outreach Fund, to support critical State PTS programs, including:
 - Pollution Prevention/Energy Efficiency (P2/E2) Technical Assistance Providers
 - Education and Outreach To Schools
 - Fish Consumption Advisories
 - Household Hazardous Waste and Electronic Collection and Recycling

Result: Critical in-basin State PTS programs will help small and medium size businesses reduce PTS, provide education and outreach to protect public health, and collect PTS-containing waste materials, thereby reducing PTS releases and exposure in the Great Lakes Basin.

- Provide “bundled” State technical assistance services to small and medium size businesses for compliance assistance, pollution prevention audits, and energy efficiency audits in a “one stop shop” program.

Result: State technical assistance to small and medium businesses will be more accessible, and therefore PTS releases from these businesses will be decreased.

- Develop a P2/E2 Revolving low interest loan fund to help finance pollution prevention and energy efficiency projects (how about tax credits for energy efficiency and P2 project investments?).

Result: Improved ability of companies to make "green investments" in manufacturing facilities that will reduce the formation and release of PTS.

- Establish a Great Lakes Toxics Reduction Exchange, patterned after the Climate Exchange, for companies to trade and purchase “environmental credits”.

Results: Provide an incentive to reduce PTS emissions in the basin.

B. Information-Related Actions

Improved management of PTS also requires improved information: for residents to make informed decisions, for better screening of chemical threats, and for monitoring progress in the environment.

i. Personal Responsibility: The Need for Outreach and Education

It is increasingly obvious that the habits of individuals and households have a significant impact on the Great Lakes ecosystem. This is true for PTS—for example, some household activities such as burning trash are significant sources of dioxins and furans. With better knowledge, residents of the Great Lakes basin can make better decisions as citizens and consumers that impact the health of the Great Lakes as well as their own health.

- Develop and provide a consistent and easily accessible basin-wide message regarding the presence and possible health effects of PTS and ways to reduce their output. Topics would include mercury-containing devices, energy conservation, and trash burning.

Result: Reduced inputs of mercury, dioxins, and other PTS from households.

- Develop and provide fish consumption advice that is consistent across the Basin and issue advice to citizens and health care workers in multiple languages.

Result: Widespread awareness of the risks attributed to consumption of contaminated fish and reduced body burdens of PTS and consequent health risks to Great Lakes residents.

ii. Knowledge to Improve Decision-Making

Just as residents of the Great Lakes must be provided with knowledge in order to make informed decisions, the lawmakers, program managers and stakeholders must have knowledge for decision-making. This more technical information includes models of how PTS move through the environment, assessing the toxicity of PTS, and screening new chemicals in commerce for potential problems.

- Create and maintain a central body or clearinghouse for chemical screening information from various screening programs in the Integrated Risk Information System (IRIS) or another appropriate database.

Result: A centralized location, where the most recent and authoritative information can be found, for EPA and other partners to consult in making decisions regarding management of PTS.

- Utilize predictive chemical screening programs such as the PBT Profiler and Quantitative Structure Activity Relationships (QSARs) to inform Great Lakes pollution prevention and monitoring programs regarding potential chemicals of concern.

Result: A systematic way to identify potential chemicals of concern so that monitoring efforts and pollution prevention actions can be prioritized and implemented in a timely manner.

- Develop a Great Lakes basin-wide, multi-media exposure model (transport, fate, and bioaccumulation) framework and apply to chemicals of emerging concern as identified with screening tools and/or monitoring programs.

Result: Permit further prioritization of chemicals of emerging concern and gain insights on important sources (including in-basin vs. out-of-basin) and exposure pathways.

- Apply existing mass balance models on a lake-wide basis to assess progress and program effectiveness in reduction of BTS and LaMP priority chemicals.

Result: Ability to compare predicted decreases in levels of PTS, based on program implementation predictions as well as a no-action scenario, with actual decreases following reduction efforts. This will help prioritize ongoing reduction efforts and remediation efforts aimed at remaining contaminated sites.

- For selected chemicals of emerging concern, develop water quality and fish tissue criteria with regards to human health and water quality criteria for aquatic life and recreation.

Result: Limit the discharge of chemicals of emerging concern to the Great Lakes basin.

iii. Information for Accountability: Monitoring and Indicators

Great Lakes lawmakers, program managers, and stakeholders must be able to assess progress. In some cases, this means monitoring the environment for contaminant levels in fish, other wildlife, humans, air, water, and sediment. However, such monitoring may not fully assess progress of programs within the Great Lakes since inputs from the air, which can contain contaminants transported from longer distances, are so significant for the Great Lakes. Therefore, PTS emission and release information is needed in addition to environmental monitoring.

- Institute a Great Lakes human biomonitoring program including analysis of chemicals of emerging concern in human tissue and enhanced monitoring of sensitive populations.

Result: A database that can be used to inform and set priorities in PTS reduction programs to protect human health.

- Expand and improve federal, state, and local emissions inventory programs to: provide greater information accuracy and consistency; improve and expand the speciation of emissions; increase standardization and transparency of collection methods; and evaluate and address additional source categories and chemicals.

Result: Ability to better target sources of PTS for reduction actions and track reductions.

- Provide resources needed to adequately monitor chemicals of concern for each of the State of the Lakes Ecosystem Conference (SOLEC) PTS indicators including contaminants in a air, water, fish, and other biota.

Result: Better understanding of trends in levels of PTS in the environment.

- Fully fund international and national PTS monitoring programs, such as those coordinated by the Commission for Environmental Cooperation (CEC) and the United Nations Environment Programme (UNEP).

Result: Monitoring on a broad geographic scale and improved emissions inventories of PTS outside the Great Lakes Basin will help to accurately identify relative contributions of atmospheric PTS from local, regional, and global sources and target significant sources for reduction.

VI. Connecting PTSs to Other Great Lakes Issues

Contaminated sediments, disposal sites, and other legacy sources are important sources of PTS in the Great Lakes, particularly for PCBs. Therefore, the PBT Team has a strong interest in ensuring that the AOC Team's recommendations are implemented.

[Insert text on cross cutting (e.g., AOC), sustainability, human health and tribal issues.]