

=====Electronic Edition=====

**RACHEL'S HAZARDOUS WASTE NEWS #225**

---March 20, 1991---

News and resources for environmental justice.

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## **REAL HOPE FOR THE GREAT LAKES: LOCAL GROUPS FORM 'ZERO DISCHARGE ALLIANCE'**

The environmental movement is taking a historic step forward as we speak. Dozens of local groups calling themselves the Zero Discharge Alliance have banded together around the Great Lakes pushing a platform that is simple, yet powerful, far-reaching, and seemingly achievable: they demand an end to the discharge of persistent and/or bioaccumulative toxic substances into the Lakes, starting with a ban on chlorine in the pulp and paper industry. The slogan "zero discharge" is thus transformed from a theoretical idea developed by scientists like Pat Costner, Ted Taylor and John Gofman (see [RHWN #155](#)) into a workable program that citizens can campaign to achieve. It seems like an idea ready to take form and substance in the real world: ban the discharge of persistent and/or bioaccumulative toxins. But what do these words mean?

Examples of persistent chemicals are heavy metals such as mercury, lead, arsenic and cadmium which never break down or degrade because they are, themselves, elements; they can never turn into anything else and their poisonous characteristics endure forever. Other examples of persistent chemicals would include DDT, which has a half-life of roughly 20 years in the environment. (A substance's "half-life" is the time it takes for half of that substance to disappear. After 10 half-lives, approximately one one-thousandth [actually 1/1024] of a substance remains, so scientists say, as a rule of thumb, that chemicals persist in the environment for 10 half-lives. Thus DDT, with a half-life of 20 years, takes 200 years (10 half-lives) to disappear after it has entered the environment. There are thousands of persistent toxic chemicals and they are dangerous because they remain available for such a long time to poison plants, animals and humans.

A bioaccumulative chemical is one that moves from the non-living environment (air, water, soil) into living things with an increase in concentration. For example, a chemical like DDT may appear in air or water at levels that seem harmless (a few parts per trillion) yet may end up in living things at

concentrations that cause cancer or interfere with reproduction. See Figure 1, which shows how the concentration of DDT is magnified 10 million times between water and birds in Long Island Sound. Three parts per trillion (ppt) in water produces 25 parts per million, a toxic concentration, in fish-eating birds (ospreys).

[Omitted from this version: Figure 1. An example of bioaccumulation: The concentration of DDT in living organisms is magnified approximately 10 million times in a food chain of Long Island Sound. Dots represent DDT and arrows show small losses through respiration and excretion. From: G. Tyler Miller Jr., *LIVING IN THE ENVIRONMENT* Third Edition (Belmont, CA: Wadsworth Publishing Co., 1982), pg. 93.

Bioaccumulative toxins are dangerous because amounts that seem harmless are multiplied as they pass through the food chain; often the result is environmental destruction. The adverse consequences of bioaccumulative toxins may become understood only after it is too late. For example, human breast milk is now contaminated with hundreds of persistent, bioaccumulative toxins (see [RHWN #193](#)), but the effects of these poisons upon breast-fed infants is not known except in rare cases. Such dousing of infant children with persistent, bioaccumulative toxins is a massive experiment; the full results may become known in the future, but one thing is known beyond any doubt today: it cannot help the human species to expose it from birth onward to a constant bath of industrial toxins. (People who are tempted to think that the human species might be improved by random meddling with our genetic structure should remind themselves that a human is something like a TV set [though of course much more complex] and the hope of improving a human by randomly introducing poisons into its diet at an early age is like splashing hot solder into a TV set's electronic circuits hoping to improve the picture.)

It is important to note that many of the most toxic, persistent, and bioaccumulative chemicals are formed by the use of the element chlorine. DDT, PCBs, dioxins, CFCs, and many pesticides are chlorine compounds. Most people know of chlorine because it disinfects their drinking water, kills germs in the local swimming pool, or bleaches their clothes in the washing machine. Unfortunately, when it is used by industry, chlorine produces a broad spectrum of toxins that persist in the environment and bioaccumulate. In a very real sense, chlorine lies at the heart of the toxics problem, world-wide.

For two decades, government has tried to control toxic pollutants one at a time, by establishing the exact amount that could be safely released into the environment, issuing "permits" giving industry permission to discharge toxics into air and water, then trying to police the polluters to force compliance with the permitted limits. The entire effort was foolish from the start: there are over 40,000 chemicals in use today and 1000 to 2000 new ones enter commercial channels each year. Meanwhile during its 20-year effort, government has managed to establish "safe" limits for fewer than 100 chemicals. Meanwhile, government has gone ahead and issued permits that ignored most chemicals entirely (because there was no basis for saying how much was safe). Finally, government never showed any real interest (or ability) in enforcing these silly permits. A classic house of cards. This wrong-headed effort at pollution control (instead of pollution prevention) has led to massive damage to wildlife throughout the Great Lakes (see [RHWN #146](#)) and, worldwide, a dangerous accumulation of toxics in creatures that eat at the top of the

food chain, like large birds, large fish, bears, and humans.

It is now crystal clear that the old way has been a complete failure, which, if it is continued, can only lead to the extinction of humans.

The alternative to chemical-by-chemical regulation is zero discharge, a sweeping ban on the release of persistent, bioaccumulative toxins.

How could such a sweeping ban become politically acceptable? That is the nut the Zero Discharge Alliance seems to have cracked.

The Alliance has a three-point Great Lakes program they say is the first step toward a total ban on discharges of persistent, bioaccumulative toxins.

Point 1: Ban the use of chlorine in the pulp and paper industry around the Great Lakes.

Point 2: Because incinerators are the fastest-growing technology that spews persistent, bioaccumulative toxics into the environment, ban all new incinerators that affect the Great Lakes.

Point 3: All new discharge permits that government issues to industry (for chemical-by-chemical control) must contain "sunset" provisions that establish fixed dates for the phase-out of toxic chemical discharges and for changing those industrial processes that contribute to persistent toxic pollution. No industry has a right to pollute.

The Alliance is working in the Great Lakes but these ideas will surely spread. (More on this later.)

For further information, contact: Zero Discharge Alliance (ZDA), P.O. Box 32246, Detroit, MI 48232, or ZDA, P.O. Box 7243, Windsor, Ontario N9C 3Z1.

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