You're being poisoned
Mercury is in your air, water, and food. Maine wants to solve the problem, but the federal government stands in the way
BY JENNIFER LUNDEN

BELLWETHER BIRD: as the loon goes, so goes Maine.

Kay Meyer doesn't know for sure if the mercury that made her so sick came from a lifelong diet that included large amounts of tuna and swordfish, the three years she spent working as a dental hygienist, or a mouth full of mercury amalgam fillings.

Now 59, Meyer raised three children on her own as a single mom; she was always a healthy, capable woman. "I did what I needed to do and what I wanted to do. I was generally very healthy," she says. But, 10 years ago, Meyer's health took a decided downswing. The worst thing was the chronic fatigue; some days she could barely get out of bed. She became so sensitive to chemicals that even the ink from the newspaper made her dizzy and headachy, and she often had to leave restaurants if someone nearby was wearing perfume or cologne. Her weight dropped 60 pounds when she developed severe food allergies. She couldn't think clearly, had difficulty sleeping, suffered from punishing headaches, and became depressed and anxious.

Meyer calculates that over 10 years she saw 41 doctors and "I've had so much testing done." But they could find nothing wrong. Finally, she was referred to a naturopath, who thought to test her for mercury using hair, urine, and blood samples; the level of mercury in Meyer's body was extremely elevated.

Because it is such an insidious part of our daily lives, accumulates gradually in our bodies, and expresses itself differently in different people, mercury poisoning is not easily identified. What *is* known, according to the Centers for Disease Control and Prevention (CDC), is that one in 12 women of childbearing age has mercury levels high enough to put a fetus in danger of neurological harm. In Maine, the numbers are even higher. According to the Maine Bureau of Health, 20 percent of Maine women carry enough mercury in their bodies to cause permanent brain damage to a fetus. And new research from the Environmental

Protection Agency concludes that 630,000 infants are born each year in the US with blood mercury levels high enough to double the risk of poor brain development. That's twice the previous estimate, which means twice as many children than previously thought are born each year with a heightened risk for disabilities like mental retardation, cerebral palsy, deafness, and blindness.

So, when the Bush administration announced in December its plans to roll back standards that would have cut mercury emissions by 90 percent in four years, Kay Meyer wasn't the only one to express grave concerns. Vocal, too, was the Alliance for a Clean and Healthy Maine (ACHM), a coalition of groups with a combined membership of 25,000 Mainers, which has been working successfully on the local level to rid Maine of mercury. But for all its local progress, says Maggie Drummond, Maine Field Director for the Toxics Action Center, a member of the ACHM, "Rollbacks on a federal level will have a huge impact on the state of Maine."

Already, rain in Bridgton is contaminated with "more than twice the generic EPA aquatic life and wildlife standard and over 14 times the new more protective human-health standard developed for the Great Lakes," according to studies by the Mercury Deposition Network. "The mercury in rain falling on Acadia National Park peaked at . . . close to four times the current EPA standard and over 23 times higher than the Great Lakes human-health standard." On average, the rain in Maine carries mercury levels more than three times greater than the EPA's updated human-health standard for the Great Lakes.

Twenty-five percent of that mercury has migrated from other parts of the US, mostly coming from airborne particulates generated by coal-fired plants. Another 25 percent comes from global sources. Fifty percent originates right here at home. Maine doesn't have any coal-fired power plants, but it does have four incinerators — where mercury is burned and released into the air — located in Portland, Biddeford, Auburn, and Orrington. After the incinerators, the biggest single source of mercury in Maine is Dragon Cement in Thomaston. HoltraChem, in Orrington, a now defunct chlor-alkali plant which once produced chlorine for paper plants, is one of the largest mercury-contaminated sites in the country.

There are, however, two coal-fired power plants in New Hampshire. One, Schiller-Newington, sits right on the border of Maine, and, due to grandfathering, has been able to continue polluting without installing modern, cleaner technology.

In 1998, the New England Governors and Eastern Canadian Premiers promised to "virtually eliminate" mercury emissions in the region. This pledge has provided a springboard for Maine lawmakers. In 2000, legislators passed a bill requiring that mercury be collected and recycled rather than disposed of in incinerators. In

2001, a new law banned the sale of mercury thermometers in Maine. In 2002, legislation was adopted phasing out mercury thermostats and requiring that mercury switches be removed from cars before disposal, with manufacturers required to pay for the removal.

Maine has proven to be a leader when it comes to eradicating mercury from our environment. But, according to Maggie Drummond, while "all of the various local campaigns and pieces of state legislation that are dealing with mercury will be helpful, rollbacks on the federal level will be much more harmful to our health."

Two years ago, the EPA's own scientists said that the Clean Air Act could achieve a 90 percent reduction of mercury emissions from power plants using "Maximum Achievable Control Technology" (MACT). A Clinton Administration EPA decision to impose MACT standards on mercury by 2007 would have done just that. Now, Bush's EPA is proposing to rescind the determination that mercury from power plants should be regulated as a toxic substance. Under the Bush proposal, coal-fired power plants like the one on Maine's border will reduce their mercury pollution from the current 48 tons per year to 34 tons in 2010, and 15 in 2018, for a total reduction of just 70 percent. Amanda Sears, Campaign Director for the Environmental Health Strategy Center (another member of the ACHM), says that's not enough. "It's technology that's achievable now, and there's no reason for companies not to achieve it now . . . We shouldn't be continuing this problem another 18 years." Sears points out that the Bush proposal leaves at risk the *grandchildren* of women having babies today.

The White House proposal also provides the opportunity for mercury polluters to avoid making any reductions at all by buying pollution credits from other, cleaner plants. While this sounds like it might be a fair, market-based system to reduce emissions, what it really does is set up the danger of mercury "hot spots." For instance, the Schiller-Newington power plant across the bridge in New Hampshire could buy pollution credits, continue their current polluting, and disproportionately impact neighboring towns like Kittery and Eliot.

Congressman Tom Allen (D) condemns Bush's rollbacks. "People need to understand what this administration is doing to undermine public health in the name of efficiency for industry." Allen points out that because Maine is downwind of coal-fired plants mainly congregated in the Midwest, mercury levels in loon feathers is four times higher here than in Oregon. That and Maine's strong environmental ethic has generated bipartisan opposition to these rollbacks amongst the Maine delegation. In fact, says Allen, "The whole delegation [himself, Congressman Mike Michaud (D), Senator Susan Collins (R), and Senator Olympia Snowe (R)] is united on this."

But Allen isn't just concerned for Maine loons. He knows that mercury levels in loons are a measuring stick for mercury levels in our environment. And he knows that mercury in our environment eventually winds up in our bodies.

Dr. Dave Evers, director and founder of the BioDiversity Research Institute in Falmouth, has been studying mercury levels in loons since 1994. He says that 20 to 25 percent of loons in Maine have high mercury levels, high enough, in fact, that they are at risk of neurological and behavioral problems; those loons fledge 40 percent fewer young. And some tree swallows in Acadia National Park are more mercury-contaminated than birds at a Superfund site in Massachusetts, according to Jerry Longcore, of the US Geological Survey. Both scientists hesitate to make any dire pronouncements, noting that it's difficult to tell if mercury is putting their study populations at risk. At the same time, they say that these birds are representational of the larger picture. "So in that sense," says Longcore, "it may be not so important whether they're affected or not. They are part of the cycling of the mercury from one place to another, and the potential for being picked up by other [predator] species is certainly there."

And we Mainers *are* a predator species. George Smith, Executive Director of the Sportsman's Alliance of Maine, comments that "The greatest impact, obviously, is on sportsmen. The general population is one step away from that." He notes that virtually everyone he knows has cut back on eating Maine-caught fish, due to concerns about methylmercury (a potent form of mercury that accumulates up the aquatic food chain), says Smith, considering Maine's heritage as a sportsman's paradise.

In fact, Maine has a fish advisory with "safe-eating guidelines," which recommend strict limits on fish consumption. They mention that fish like pickerel and bass have the highest mercury levels, since they feed on other fish. Women of childbearing age, pregnant or nursing women, and children under the age of eight should not eat any freshwater fish other than one meal per month of brook trout or landlocked salmon. All others can safely eat freshwater fish twice per month, brook trout and landlocked salmon once per week, according to the advisory.

The problem is, these safety guidelines are based on averages and estimates. A Bureau of Health brochure notes that "If you follow the guidelines, you're safe eating the fish from over 95 percent of Maine lakes and ponds." But what about the other five percent? Bodies of water like Longcore's study sites — Seal Cove, Hodgdon Pond, and Aunt Betty Pond, in Acadia National Park — are highly contaminated. It may be unsafe for anyone to eat any fish from these ponds.

And how's the water near the HoltraChem site in Orrington? When it was active, it spewed mercury into the air, and poured it into the river. Dr. Evers has studied

mercury levels in the fish and loons around the site since 1998, when the plant was still in operation. The highest levels of mercury were found in a group of lakes east and southeast of the site, toward Acadia National Park, in the direction of the prevailing wind. "You kind of see the plume, if you want to think of it that way, of mercury that comes from that plant. And it's highest in the lakes closest to it, and it . . . dissipates as you get further and further away from it." Though mercury in the surrounding environment has probably declined somewhat since HoltraChem declared bankruptcy and closed in 2000, Dr. Evers says that when he did his research it was "very high. It's some of the highest you'd see in the rest of the state." The Department of Health has not issued any advisories about the particular toxicity of these lakes.

HoltraChem is now closed, but 12 tons of mercury remain at the site. The Maine People's Alliance (MPA), along with other concerned citizens, is fighting to make sure it is thoroughly cleaned up, and the long-term consequences adequately researched. John Dieffenbacher-Krall, MPA's co-director, says, "As early as 1970, the environmental regulation agencies that existed before the EPA was created had some sampling done, and they found mercury contamination — no surprise — hundreds of parts per million, in the sediments of the Penobscot River. That was only three years, the plant had been in operation three years, and already you're seeing this massive pollution. And yet despite collecting information like this, there never have been really the right kinds of scientific questions posed or answered about what is this mercury really doing?"

The MPA has collected some "suggestive evidence" of cormorants in the Penobscot being affected, of reduced bald eagle reproduction, and of elevated mercury contamination in mussels and lobsters. Dieffenbacher-Krall noted Penobscot Bay's importance to the lobster industry. A number of communities in the area depend on lobsters for their economic survival: What if mercury contamination levels in area lobsters increased enough to put the industry at risk?

Dieffenbacher-Krall also expressed concern about a proposed Penobscot River restoration project which would involve removing two dams, opening up 500 miles of spawning habitat to fish like sturgeon, alewives, blueback herring, and 10,000 or more salmon a year. He worries that millions of additional fish will be at risk for mercury contamination.

According to Dieffenbacher-Krall, Dr. Phillipe Grandgan, one of the world's most noted authorities on mercury exposure and human health, has determined that there's already enough mercury in fish in the Penobscot River that eating one fish meal during pregnancy is enough to put a fetus at risk for lowered IQ, reproductive health problems, and other central nervous system damage.

Studies show elevated levels of mercury in the Penobscot even 20 miles below the HoltraChem site, says Dieffenbacher-Krall. And while the EPA and the Department of Environmental Protection are addressing on-site pollution at HoltraChem, they are ignoring what's happening downriver.

The MPA, along with the National Resources Defense Council, initiated a citizen's suit against Mallinckrodt — the only former owner of HoltraChem still in existence, now charged with the responsibility for cleanup of the site — to force the company to study the effects of the mercury on aquatic wildlife in the area and the potential human-health impact, and to clean up the Penobscot River. The alliance successfully proved imminent threat to human health and the environment, warranting federal court intervention, and won their case in July, 2002. Now the MPA is legally designated to negotiate adequate research and cleanup efforts.

Maine's Penobscot Indians are also worried about the river that shares their name. "Our concerns about mercury go right to the heart of our culture as a Native American riverine-oriented tribe," says John Banks, Natural Resources Director of the Penobscot Nation. "We've been here in the Penobscot River watershed for over 10,000 years. We've developed a very close cultural and spiritual relationship with the Penobscot River." The 1980 Land Claim Settlement Act upholds the Penobscot Nation's right to regulate fishing among its members, and under the federally recognized Aboriginal Fishing Right, the government has a duty to ensure that fishing rights are protected and that fish are available to the tribe, according to Banks. The necessary federal and state fish consumption advisories, "threaten our ability to carry on our tradition."

As the reservation ends about 25 miles upriver from HoltraChem, Banks says the tribe's predominant concern is the airborne mercury which blows in from the Midwest and insinuates itself into Maine's environment. And although studies have not yet been done, many Penobscots worry that mercury may already be affecting their health. Banks hopes that the Agency for Toxic Substances and Disease Registry (ATSDR), which is currently working with the Penobscot Nation to study health problems related to dioxin, may eventually study the effects of mercury on members of his tribe.

And while currently there is no statewide tracking system that might help identify trends in health problems, including mercury poisoning, among Mainers, Maine may have the opportunity to change that. Maine's Bureau of Health recently secured a large grant from the CDC to track environmental health information. Groups in the Alliance for a Clean and Healthy Maine hope the State will use this grant to identify trends in learning disabilities, reproductive problems, and other indicators of environmental toxicity. The Bureau of Health is in the process of determining how to use the grant, and it is unclear whether or not it will pay for

testing of levels of contaminants in people. Since mercury poisoning is not always easily identified without testing, it may be difficult for the system to attribute health problems to the toxic metal unless exposure information is collected.

The federal government also lacks a comprehensive program to track disease and exposure to environmental contaminants like mercury. The Environmental Working Group (EWG), a nonprofit research and advocacy organization focusing on the environment and human health, has put together a recommendation for a nationwide environmental health tracking network that would, as stated on its Web site, "enable health officials to investigate clusters, outbreaks, and emerging threats." An "Early Warning System" would "alert communities to immediate health crises such as heavy metal and pesticide poisonings. Similar to the monitoring currently in place for an outbreak of an infectious disease, this alert would help local communities to identify more quickly and act immediately on health crises from environmental exposures."

But the US government does not seem to be in any hurry to establish such a system. In fact, the CDC Web site doesn't even include mercury on its "A-Z Index" or under "Environmental Health." The Agency for Toxic Substances and Disease Registry does not list mercury in it contents.

And some say the Food and Drug Administration (FDA) has been dragging its feet about publicizing a thorough and accurate national fish advisory. As far back as 1991, the National Academy of Sciences concluded in a study on seafood safety that the adequacy of the FDA's "action level" standards to protect the fetus "is highly doubtful." While the FDA currently recommends that pregnant women and women of childbearing age avoid eating any swordfish, shark, king mackerel, or tilefish, it was recently criticized by an advisory panel for not adequately publicizing the risks and for not including tuna — which has been proven by the EWG to be more highly contaminated than tilefish, and *is* included in Maine's safe eating guidelines — in its advisory.

A February, 2002, EWG press release indicates that the government may be putting fetuses at risk in order to protect the tuna industry. It reports that "A top FDA scientist admits that FDA's current mercury 'action level' in seafood does not protect the fetus and also says that pregnant women need to limit their consumption of tuna to protect their babies from mercury damage. Yet the message the FDA gave to the public only months later, after three private meetings with the tuna and seafood industry, claims that tuna is perfectly safe."

The federal Women, Infants, and Children (WIC) program still has tuna on its basic menu.

Canned albacore, also known as white tuna, has almost three times as much mercury as light tuna. The EWG recommends that pregnant women, women of childbearing age, and children under five avoid albacore altogether. "People eating this tuna will exceed safe exposure levels by a wide margin."

And what about men? The EWG's Web site offers a "Tuna Calculator." According to its calculations, a 170-pound man can safely eat 2.5 cans of light tuna a week, or one can of albacore, "assuming that every can of tuna has an average amount of mercury." If the man eats other seafood during that week, he should eat less tuna.

And tuna's not the only high-mercury fish ignored by the FDA: Grouper, sea trout, orange roughy, and bluefish all have higher levels of mercury than tilefish, according to the FDA's own test results, obtained by the EWG through the Freedom of Information Act.

Another problem with the advisory, says the EWG, is that the FDA's safeguards "are designed to protect an average-sized woman eating an average fish contaminated with an average amount of methylmercury that decays in her body at an average rate." The EWG points out that these ideal conditions rarely exist in real life. Since 10 percent of US women (and 20 percent of Maine women) of childbearing age already have dangerously high levels of mercury in their bodies, the advisory's recommendations actually put them at greater risk.

The US government has, historically, been inconsistent about what constitutes a "safe" level of mercury. In 1979, the FDA doubled its maximum "safe" limit after being sued by the fishing industry. It is currently in the process of re-evaluating its standards, according to the FDA Web site. And the EWG reports that the "EPA's safe exposure estimate for methylmercury has dropped twice in the past 16 years, as new science has identified adverse effects in children exposed in the womb at lower and lower doses."

Some doubt the government's currently established thresholds of safety. Dr. Joseph Py, a DO specializing in Environmental Medicine, who, until recently, practiced in Maine, asserts "There's no safe level [in the body], because it shouldn't be there."

But health-conscious women may want to eat fish for the protein, omega-3 fatty acids, Vitamin D, and other nutrients which make fish "an exceptionally good food for pregnant mothers and their developing babies," according to the EWG. Can a pregnant woman rely on her friendly local fishmonger to advise her on safe eating guidelines? The man behind the counter one day at Hannaford on Forest Avenue proved to have good knowledge about the riskiest fish. When asked if fish clerks are trained in safe-eating guidelines, however, he said no.

His wife may be pregnant; his interest was personal.

Wild Oats actually has a bright yellow "Consumer Advisory" on display above the fish counter, which the clerk said is mandatory for every Wild Oats. The Advisory gives some clear guidelines. However, its guidelines are based on the FDA's inadequate recommendations. It does suggest that pregnant and nursing women, women who may become pregnant, and young children should limit their consumption of fresh and frozen tuna. But in smaller print it adds, inaccurately, "Mercury levels in canned tuna vary, but on average are lower than levels in many other fish."

Wonder where they got that idea.

Government inconsistency and misinformation is putting fetuses and small children at risk. Bush's proposed rollbacks might more realistically be called paybacks, presenting the appearance that supporting electric utilities companies is more important to the Administration than supporting human health. According to the online news digest, *The Daily Mislead*, "White House records show that while utility representatives were invited to discuss the mercury emission proposal with the White House several times this fall [2003], no consumer- or public-health groups were included." Bush's elite fundraising group, the Pioneers, includes five executives or lobbyists for Southern Company, a coal-burning utility, and an executive from FirstEnergy. Two representatives from the coal-mining industry are also included as Pioneers.

Mercury is one of the most toxic substances in the world, more toxic than lead or arsenic. While Maine leads the way in efforts to "virtually eliminate" mercury, still the dangerous neurotoxin is a ubiquitous presence in the daily lives of Mainers. In addition to its prevalence in thermometers bought here before 2001, thermostats and barometers, switches in cars and major appliances, and dental amalgam fillings, mercury can also be found in fluorescent light bulbs, alkaline batteries, vaccines, even light-up kids' shoes.

Mercury exposure is often subtle, with diverse symptoms — including weakness, memory problems, headaches, irritability, insomnia, nervousness, joint pains, tremors, and changes in vision or hearing — arising so gradually few sufferers make the connection. Kay Meyers suffered through more than six years of terrible, degenerative health problems before she found a doctor who identified the source of her troubles. Her efforts to eradicate mercury from her body are starting to pay off. Though uncertain about possible long-term or permanent effects, she has gained back the weight she lost, and feels stronger now than she has in a long time.

A recent report from a study in Florida concluded that "strict government controls of emissions can produce dramatic improvements in much less time than scientists once assumed." And Dr. Evers' studies appear to support this finding. After two years of crackdowns on mercury emissions at three incinerators in southern New Hampshire, biologists from the BioDiversity Research Institute have already found "dramatic differences" in the blood levels of mercury in area loons.

The New England Zero Mercury Campaign gave Maine a B+ on its 2003 "Report Card," suggesting "more action from the national level is needed." Senator Susan Collins's Mercury Reduction Act addresses the problem of surplus mercury by authorizing the EPA to retire surplus mercury from military and industrial settings, establishing a federal task force to establish long-term solutions for mercury disposal, and funding a national thermometer-exchange program.

And Maine's two representatives, Tom Allen and Mike Michaud, have appealed to EPA administrator Michael Leavitt to hold a public hearing in New England to hear concerns about the Administration's rollbacks. A date has not been set, however. The congressmen also urged a 30-day extension on the public comment period. Concerned citizens can call Leavitt, himself, to comment, at (202) 564-4700.

In a time when fish advisories become part of what gets taken for granted in America, Maine's condition as the dumping ground for airborne mercury from Midwestern coal-fired plants may motivate its people to lead the way once again.

Jennifer Lunden can be reached at jenniferlunden@hotmail.com

This is Part one of a two-part special report on mercury in Maine. Part two, which will appear in the issue of February 27, will address the controversy over the safety of mercury dental amalgams and more closely examine the difficulty, in Maine, of being diagnosed or treated for mercury toxicity.