Mercury pollution can threaten the health of people, fish, and wildlife everywhere, from industrial sites to remote corners of the planet, and reducing mercury use and emissions would lessen those threats.

According to Dr. Edward Swain, a scientist at the Minnesota Pollution Agency, the social and economic costs of mercury are probably higher than currently estimated, because they don’t take into account mercury’s impact on wildlife.

- Reductions in local and regional point-source mercury emissions have lowered mercury levels in the fish and wildlife affected by them. However, increasing mercury concentrations are now being found in a number of fish-eating wildlife (such as pike, walleye, and lake trout; mammals such as mink, otter, polar bears, and seals; and birds such as common loons, bald eagles, osprey, cormorants and kingfishers) in remote areas.

- Methylmercury exposure may lead to population declines in birds and possibly in fish and mammals as well.

In the past decade, mercury contamination has prompted steadily increasing numbers of fish-consumption advisories in 40 states, now accounting for more than three-fourths of all such advisories in the United States. Nearly all of the mercury in fish is methylmercury (MeHg), a highly neurotoxic form that readily crosses biological membranes, can accumulate rapidly in exposed organisms, and can build up to high concentrations in aquatic food webs. Consumption of fish is the primary route of MeHg exposure in humans and in many species of wildlife.

While attention to the mercury problem has been motivated by concerns about effects on human health, wildlife near the top of aquatic food webs are particularly vulnerable to MeHg. A research study funded in part by UW Sea Grant indicates that some fish-eating species, such as the common loon, Gavia immer, are being adversely affected in mercury-sensitive ecosystems, where small amounts of total mercury can seriously contaminate aquatic food webs with MeHg. In birds, the effects of MeHg are most severe in embryos and newly hatched chicks. Low-level dietary exposures that cause no measurable effect in the adults can significantly impair egg fertility, survival of newly hatched chicks, and overall reproductive success. The results of this work will be used to establish the level of mercury in fish that safeguards survival and health of loon chicks reared on lakes in Wisconsin.