Summary of closing comments by Ed Swain, MN Pollution Control Agency

Several presentations were particularly significant, in that they documented subtle but measurable negative effects of mercury on fish and wildlife:

- Nil Basu showed that neurochemical biomarkers reveal subclinical effects of mercury in a variety of species of fish consumers, including mink, otters, loons, and eagles.

- Mark Sandheinrich spoke of recent findings that document negative effects of ambient mercury exposure on fish, including reduced growth and condition of individuals, and depressed reproduction.

However, a number of presentations at this conference could be interpreted as implying that elemental mercury emissions are of less concern than oxidized mercury – because elemental mercury is much less likely to be deposited near the emission source. I suggest that such a message would lead policy makers down a self-defeating path, if they conclude that it is sufficient to pursue reduction strategies that target "local deposition" (i.e., the mercury that is deposited within the political boundaries of the sources for which they have regulatory power).

The problem with an emphasis on reducing local deposition, and not worrying too much about the elemental mercury that is transported far away, is that elemental mercury emissions around the world are the source of most of the mercury that is deposited across the Great Lakes region, and, actually, almost everywhere in the world. This truism was implicitly central to several presentations made at this conference:

- Leonard Levin noted that reductions of mercury emissions from U.S. coal-fired power plants would result in minimal reductions of deposition in the U.S., largely because of the diluting effect of international emissions, of which most are elemental, or become elemental after re-emission subsequent to initial deposition.

- Noelle Selin's presentation emphasized the result of her modeling effort – that only reducing deposition associated with U.S. emissions is not sufficient to make fish clean, and that the mercury transported from non-U.S. emissions must also be reduced if the U.S. is to largely achieve goals for reducing the mercury contamination of fish. The mercury that is transported to the U.S. from other countries was largely emitted as elemental mercury; if we want other countries to control their elemental emissions, then we should first develop and deploy technologies to control our emissions. It will be much easier to ask other countries to control their elemental emissions once the technology is developed and demonstrated.

It is therefore necessary to be as concerned about elemental mercury emissions as we are for forms of mercury that deposit nearer emission sources, because:

- All mercury emissions eventually deposit,
- Deposited mercury is largely re-emitted after deposition and cycled repeatedly, lengthening the time course and damage of initial emissions, and
- It is elemental mercury emissions that are causing at least half the anthropogenic mercury contamination of U.S. fish.