

## Little Rock Lake, Vilas County

### 1. Informational Update on Recent Research – Jack Sullivan, Director, DNR Bureau of Integrated Science Services, Madison



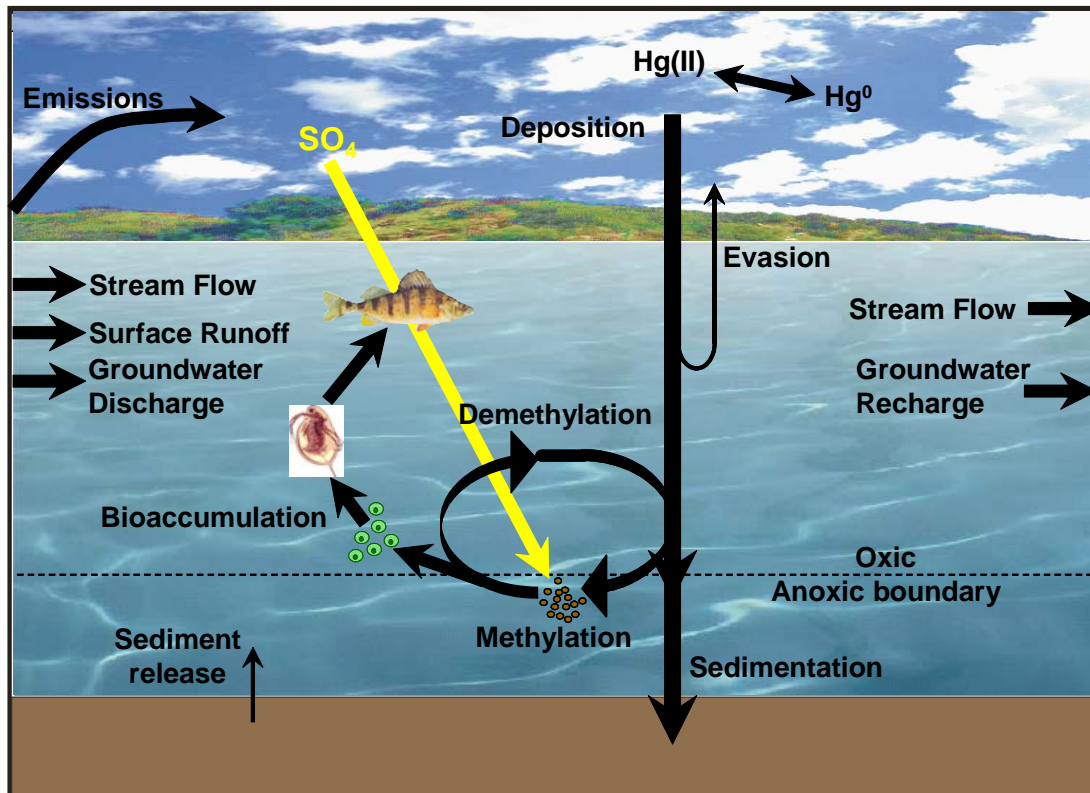
### 2. Fish Habitat Studies (2000 to present) – Dr. Greg Sass, Center for Limnology, UW-Madison

#### General Conclusions to Date

1. A strong, negative relationship exists between the amount of coarse woody habitat (CWH) (i.e. logs, sticks, and branches in the water) found in the littoral zones of lakes and the amount of lakeshore residential development.
2. Loss of coarse woody habitat (CWH) from nutrient-poor lakes, such as those found in northern Wisconsin, can cause declines in fish growth rates and the amount of fish a lake can support.
3. Coarse woody habitat provides refuge for small fishes and serves as a spawning substrate for many species of fish.
4. Therefore, loss of coarse woody habitat can lead to rapid and persistent declines in fish populations that rely on CWH for refuge and spawning.
5. Removal of coarse woody habitat can lead to elevated levels of methyl mercury in fishes because physical removal of CWH reintroduces buried mercury into a lake.
6. The rapid removal of coarse woody habitat by people (over days to years) and the slow rates of natural replacement and degradation (centuries to millennia) suggest that CWH loss can have long-lasting or permanent consequences for fish populations and fisheries.

3. Sentinel Lake Studies (1994 to present) – Dr. Carl Watras and Ken Morrison, Research Scientists, WDNR, Boulder Junction

Mercury Cycling and Acid Rain



1. The major source of mercury to northern lakes like Little Rock is atmospheric deposition (“mercury rain”).
2. Within the lake, mercury is converted to highly toxic methylmercury which accumulates in the food chain and poses a health risk to humans and wildlife.
3. The bacteria that produce methylmercury are stimulated by acid rain, which makes the fish contamination problem worse.
4. Little Rock Lake serves as a sentinel lake in Vilas County, where researchers are tracking “mercury rain” and “acid rain” and their effects on the aquatic mercury cycle. Little Rock Lake has the longest history of continuous mercury monitoring of any lake in North America.

