

# Update on Fish Contaminant Monitoring in Iowa

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John Olson  
IDNR Watershed Monitoring & Assessment Section



# The RAFT Program

- RAFT: U.S. EPA Region 7's Regional Ambient Fish Tissue monitoring program
- Began in the early 1980s as part of state WQ monitoring programs: free sample analysis; available only in Region 7.
- In 1994, EPA requested that states (1) add predator species (i.e., increased focus on human health) and (2) identify trend sites (whole-fish carp, every other year)
- In Iowa, RAFT depends on the support of the IDNR Fisheries Bureau



# Rationale for RAFT:

- Fish accumulate (bioconcentrate) *some* toxic substances: a good monitoring tool
  - Fish can be used to identify changes (trends) in these toxic substances
  - Fish can accumulate toxic substances to levels that threaten human health
  - Composite samples provide good estimates of contaminant levels

# RAFT: three types of monitoring:

- 1. Status monitoring (fillets of BF & predator):
  - Provide data for un-monitored locations
  - Provide data for assessing support of fish consumption use
- 2. Follow-up monitoring:
  - Needed to justify issuing or rescinding advisories
  - Targeted to the species and contaminant of concern
- 3. Trend monitoring (~10 river sites/state; whole-fish carp; sampled every other year):
  - Identify emerging problems
  - Determine trends in contaminants for the state
- Report results of monitoring.

# Number & distribution of RAFT sites in Iowa

- About 25-35 sites and from 45-55 samples per year per state; site are chosen by IDNR staff
- Spatial distribution for RAFT in Iowa:
  - approximately 1/3 lake sites; 2/3 river sites
  - increasingly driven by need for advisory-related follow-up monitoring (an issue for all Region 7 states)
- Sites sampled from August-September
- Data available from EPA in ~6 to 10 months
- IDNR reviews data and issues/rescinds advisories as needed & plans for next year's sampling

# Iowa's Advisory Protocol

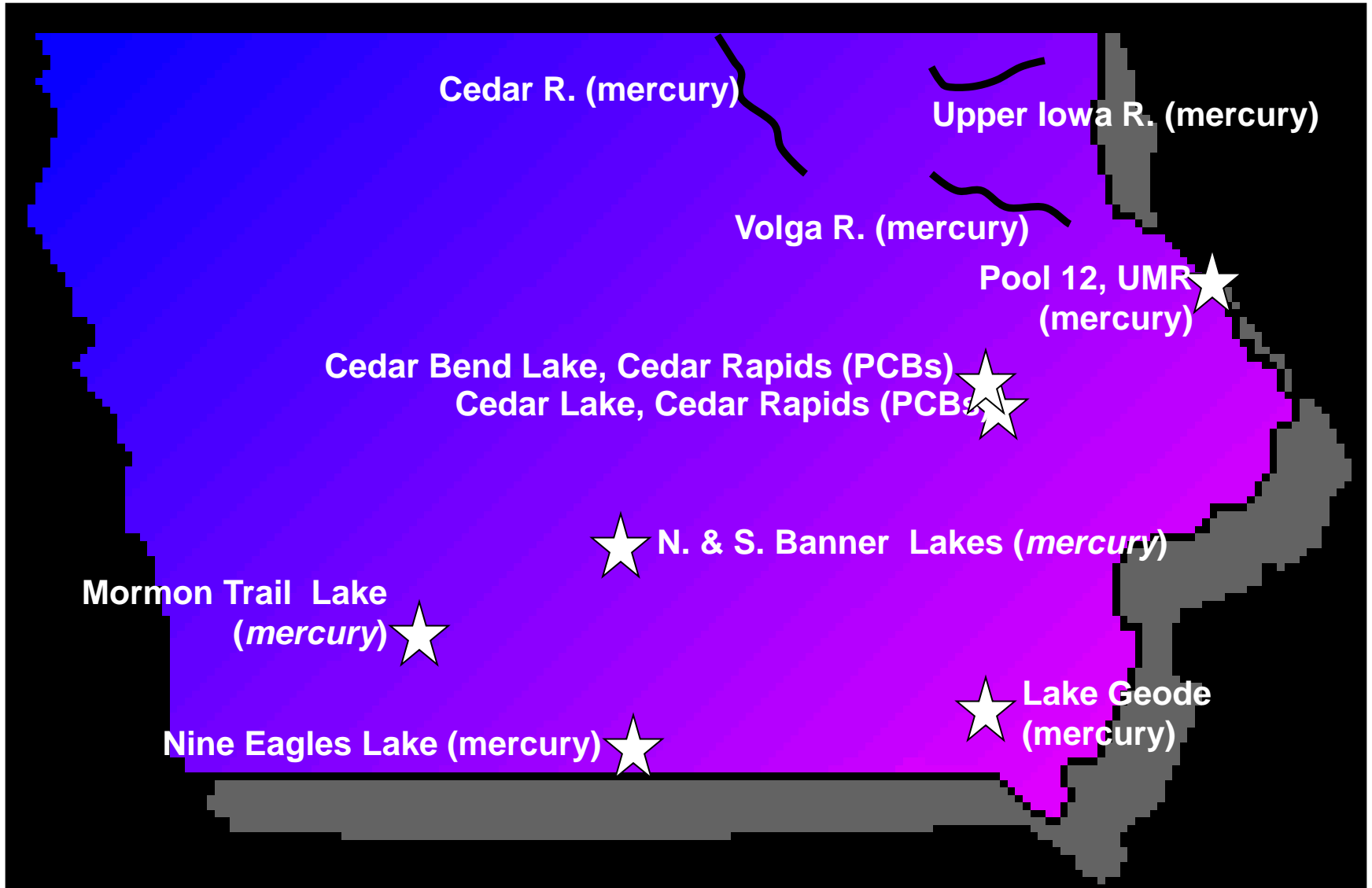
<b>Contaminant (ppm or mg/kg)</b>	<b>Unlimited Consumption</b>	<b>One Meal per Week</b>	<b>Do Not Eat</b>
Mercury	up to 0.3	> 0.3 up to 1.0	1.0 or greater*
Total PCBs (sum of Aroclors)	up to 0.2	> 0.2 up to 2.0	2.0 or greater*
Chlordane	up to 0.6	> 0.6 up to 5.0	5.0 or greater**

\*equal to FDA action level    \*\*FDA action level = 0.3 ppm

# How the advisory protocol works:

- Two consecutive samples showing contaminant levels above trigger levels are needed to issue an advisory
- Similarly, two consecutive samples below advisory levels are needed to remove the advisory
- Follow-up monitoring is conducted either as part of RAFT (slow response) or IDNR Fisheries Bureau chooses to pay for UHL to analyze the samples (quick response)

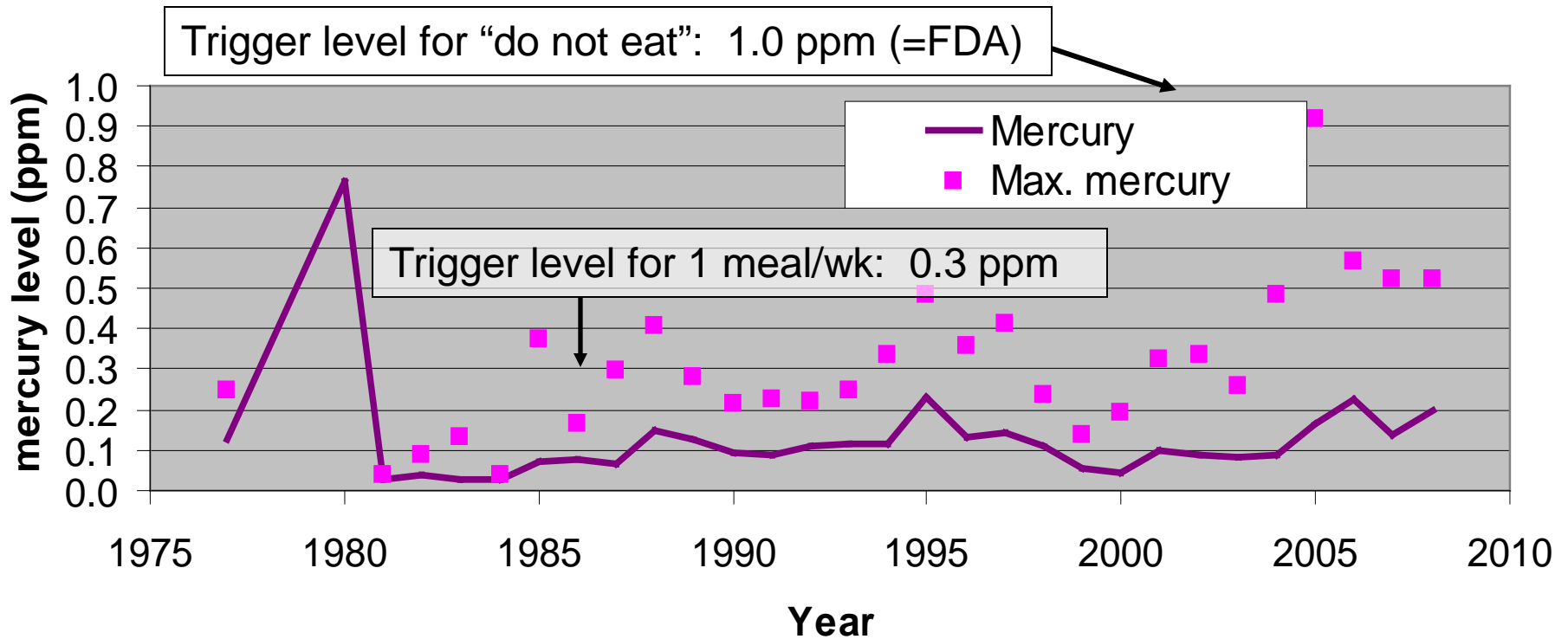
# Current Iowa Consumption Advisories



# To eat or not to eat. . .

- The issues of trace levels of contaminants in fish & risk communication:
  - Primary concern: potential impact of methyl-mercury on neurological (brain) development of fetuses & young children
  - Difficult issue: no scientific consensus
  - Best advice? Common sense: Iowa advisory is protective: eat fish in moderation if taken from an advisory area
  - IA Dept. of Public Health: recommends eating at least two fish meals/week

## Iowa RAFT: Yearly mercury averages



# Currently:

- Report of the 2008 RAFT at the IDNR web site:  
<http://www.igsb.uiowa.edu/wqm/wqa/raft.html>
- Still waiting for the results of the 2009 RAFT sampling:
  - 54 samples of fish from 33 sites collected in Aug-Sep 2009
  - samples of turtle tissue from nine Iowa lake
  - ideally, like to have the previous year's results before choosing the next year's RAFT sites
- Will likely see more advisories for mercury and a few more for PCBs



Web sites:

Iowa fish consumption advisories:

<http://www.iowadnr.gov/fish/news/consump.html>

Iowa's fish tissue monitoring program:

<http://www.igsb.uiowa.edu/wqm/wqa/raft.html>

IA Dept. of Public Health:

[http://www.idph.state.ia.us/eh/common/pdf/env/fish\\_health\\_issues.pdf](http://www.idph.state.ia.us/eh/common/pdf/env/fish_health_issues.pdf)