



Minnesota
Pollution
Control
Agency



Minnesota's Fish Contaminant Monitoring Program

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Minnesota's Fish Contaminant Monitoring Program (FCMP) supports critical human health and environmental protection programs within Minnesota by providing essential information for:

- science-based fish consumption advice;
- programs on mercury cycling, trends analysis, and water-quality standards development; and
- analysis of potential harm from newly identified bioaccumulative pollutants.

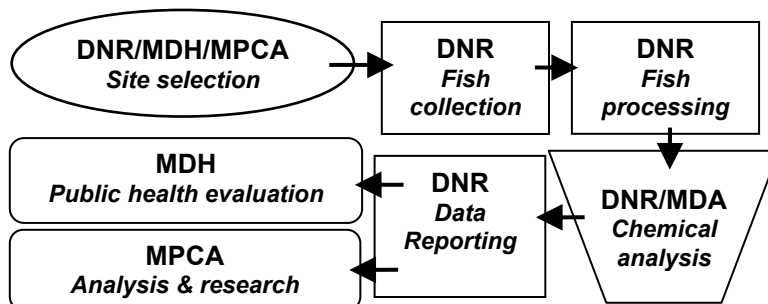
Program overview

The FCMP is a successful partnership of the Minnesota Departments of Natural Resources (DNR), Health (MDH), and Agriculture (MDA) and the Minnesota Pollution Control Agency (MPCA). Each year these agencies jointly select lakes and rivers for fish collection and analysis, in a continuing effort to meet FCMP objectives while remaining within budget. This interagency approach of shared responsibilities for obtaining and interpreting data is a cost-effective method for tracking fish contaminant status and trends.

The FCMP also has cooperated with the U.S. Environmental Protection Agency (EPA), the U.S. Geological Survey, the U.S. Forest Service and the National Park Service on fish-contamination studies.

Testing of contaminants in Minnesota fish began in 1967 and continues today. Approximately 130 lakes and river segments are sampled each year. The FCMP database now has 31,000 data records. The program has sampled about 1,200 lakes, or 22% of the estimated 5,500 fishing lakes in the state. Sampling has covered 15% of the lakes smaller than 2,000 acres and 80% of the lakes larger than 2000 acres. Minnesota's 11 largest lakes have each been sampled at least three times and the state's major rivers have had at least two rounds of sampling done on them since 1990.

Fish Contaminant Monitoring Process



Chemicals of concern

The FCMP routinely monitors fish for mercury and polychlorinated biphenyls (PCBs) and collects fish for special studies that assess human exposure to other chemicals present in fish tissue. For example, the FCMP provided fish to the EPA from 1999 to 2003 for a nationwide study of more than 100 potential contaminants in fish, including dioxins, pesticides and polycyclic aromatic hydrocarbons.

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The FCMP collects fish for analysis of other potentially health-threatening chemicals that may be building up in them. These chemicals of concern include polybrominated diphenyl ethers (PBDEs), widely used fire retardants that bear similarities to PCBs, and perfluorinated chemicals (PFCs), used as stain repellents. Analysis for PFCs has led to additional fish consumption advisories in pan fish from Twin Cities Metropolitan Area lakes and the Mississippi River. These and other synthetic chemicals need to be evaluated for their significance as hazards to human and environmental health.

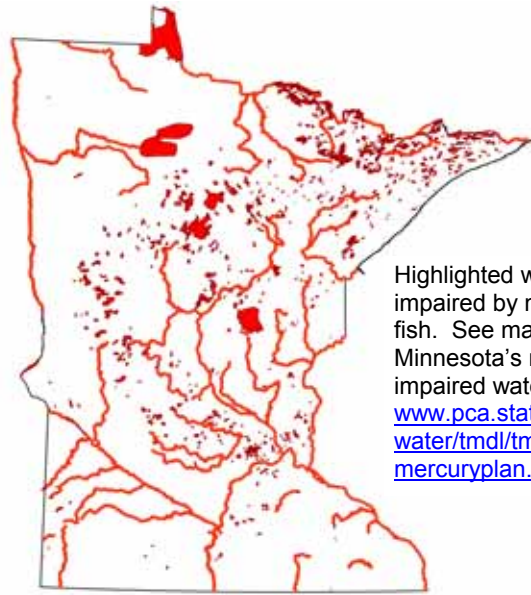
Outcomes

Fish Consumption Advisory — Using FCMP data, the MDH provides fish consumption advice that encourages people to eat fish while maintaining exposure to contaminants below a level that could cause adverse health effects. The advisory is communicated through various media and targets several audiences. Site-specific and statewide consumption advice are available on the MDH Web site (www.health.state.mn.us/divs/eh/fish) and integrated into the DNR's lake survey reports (www.dnr.state.mn.us/lakefind/index.html) and in printed documents. The statewide guidelines are in the DNR fishing regulations booklet. The MDH also provides educational brochures which are updated annually.

Identifying Impaired Waters — The federal Clean Water Act requires a biennial listing of impaired waters for each state. One or more Total Maximum Daily Load (TMDL) studies must be completed for each use-impaired water. Impaired waters must be resampled to identify when fish contaminant concentrations drop to a level that could allow their removal from the Impaired Waters List.

Mercury Cycling — The MPCA is using FCMP and water chemistry data to better understand the factors that affect the observed changes in fish mercury levels. Understanding mercury cycling helps the development of statewide advice and water-quality standards.

Long-term Trends — The FCMP has documented the long-term reduction of PCBs in fish, and sampling has been repeated in selected lakes to assess long-term



Highlighted waters are impaired by mercury in fish. See maps of Minnesota's mercury-impaired waters at www.pca.state.mn.us/water/tmdl/tmdl-mercuryplan.html.

trends in fish tissue concentrations of mercury. Average mercury concentrations in northern pike and walleye over a 25-year period, from 1982 to 2006, trended downward until the mid-1990s and has since shown an upward trend. The FCMP will continue to collect fish for mercury analysis to track this unexpected shift in the long-term trend.

Continued need to monitor contaminants

Fish contaminant monitoring must continue to:

- maintain up-to-date fish consumption advice,
- monitor waters with unusual contaminant levels,
- improve an understanding of variation in mercury levels among lakes, and
- examine temporal trends in indicator lakes.

For more information

Sample collection and chemical analysis: Call Mark Briggs, DNR, at (651) 259-5078 or e-mail him at Mark.Briggs@state.mn.us.

Fish consumption advisories: Call Patricia McCann, MDH, at (651) 201-4915 or e-mail her at Patricia.McCann@state.mn.us.

Data analysis and trends: Call Bruce Monson, MPCA, at (651) 296-7607 or e-mail him at Bruce.Monson@state.mn.us.