• Picture: St. Louis River (impaired for aquatic consumption)
• Today we’ll discuss changes to Minnesota’s Impaired Waters List, with emphasis on the Upper Mississippi River Basin.
Questions to address today

- What’s the Impaired Waters List?
- What are the new impairments in the state?
- What are the new impairments in the region?
- What happens next (after assessment and listing)?
- Where do I find more information?
- How do I comment?
• Picture: Mississippi River at St. Paul (impaired for aquatic life, recreation, and consumption)
• Impaired: Not meeting water quality standards, or goals, for supporting recreation (swimming, boating, splashing around), consumption (eating fish), and/or aquatic life (a healthy ecosystem/biological community)
These uses – what we use our lakes and streams for – are protected by standards. We evaluate standards using data. Here’s a partial list of the data used for assessment.

- **Aquatic Recreation Use**
  - Streams – Escherichia coli
  - Lakes – eutrophication (total phosphorus, chlorophyll-a, Secchi disk)

- **Aquatic Life Use**
  - Streams – fish, macroinvertebrates, dissolved oxygen, unionized ammonia, pH, total suspended solids/Secchi tube, chloride, river eutrophication (phosphorus, chlorophyll-a, BOD)
  - Lakes – fish IBI, chloride

- **Aquatic Consumption Use** – mercury, PCB’s, PFOS
- **Drinking Water Use** – nitrate-nitrogen

Monitoring and assessment also uncover waters fully meeting uses; the Impaired Waters List is a way of tracking waters that aren’t meeting use goals.
Minnesota’s Impaired Waters List

- Required by the federal Clean Water Act
- Maintained since 1992
- Updated every two years

- Minnehaha Creek (not supporting aquatic life and recreation)
- https://www.pca.state.mn.us/water/defining-impaired-waters
- The list totals 5,774 impairments in 3,416 different bodies of water.
56% impairment rate includes all waters we assessed, and all uses. Impaired waters throughout the state are not distributed evenly.
We have lots of good lakes in Minnesota. Note that lakes aren’t evenly distributed. We have very few lakes in the southeastern part of the state.
Waters in the north and northeast, where land is altered the least, are in the best shape.
• Picture: Park Point Beach House Beach on Lake Superior (fully supporting recreation)
• The Legacy Amendment passed by Minnesota voters in 2008 set aside money for testing lakes and streams, as well as projects for protection and restoration.
  • More information at https://www.legacy.mn.gov/clean-water-fund.
• Since 2010 the MPCA and local partners monitored at a major-watershed (HUC-8) scale; it took a decade to get to every watershed in the state.
  • With the 2020 List we now have an excellent idea what shape our waters are in.
  • What is a watershed? See https://www.pca.state.mn.us/water/what-watershed.
Assessed watersheds: Lower Rainy River, Rapid River, Rainy River – Rainy Lake, Kettle River, Upper St. Croix River, Snake River, Mississippi River – Brainerd, Mississippi River – Sartell, Otter Tail River, Pomme de Terre River, Redwood River, Cottonwood River, Blue Earth River
Assessed large rivers: Rainy, St. Croix Mississippi River downstream of St. Anthony Falls
Statewide assessments: Pesticides, fish consumption (mercury), nitrate in drinking waters, Lake Superior Beaches
Assessment clean up discussed later.
This is what’s new for 2020, plus some lakes/streams we take off of the list. This year we removed 49 impairments for various reasons (some discussed later).

In addition: 31 lakes and 1 stream impaired for aquatic consumption (mercury, next slide), and 3 streams with too much bacteria to support their limited use.

Since beginning the watershed approach we have doubled our Impaired Waters List with an average of 600 impairments added every two years. This is not an indication of declining water quality. We visited lakes and streams we never had data on. We found a lot of impairments but we also found waters fully meeting goals.
• Through out presentation red = impaired. New impairments are mixed in but discussed later. Blue dots are new.
• 998 lakes are impaired for mercury and nothing else (including Lake Superior); 178 stream segments.
• Mercury is in the air, from the burning of fossil fuels and other sources, is deposited on our land, lakes, and rivers, and is taken up in the food web. Too much mercury in fish means you have to limit what fish, an how much, you eat.
• Minnesota is a leader in reducing mercury emissions but most of the mercury in our fish originates from outside of the state.
• To find out how much fish in your lakes or stream are safe to eat, see Minnesota Department of Health safe-eating guidelines: https://www.health.state.mn.us/communities/environment/fish/eating/safeeating.html
• Picture: Lake Vermillion, Cass County (fully supporting life and recreation)
• As mentioned, most of the changes to the Impaired Waters List are from watersheds the MPCA assessed in the last two years. These are the watersheds assessed in this region.

- Mississippi River – Brainerd
- Mississippi River – Sartell
- North Fork Crow River
Assessment report: https://www.pca.state.mn.us/sites/default/files/wq-ws3-07010104b.pdf

Maps: Red = impaired, dark blue = supporting aquatic life, green = supporting recreation

Discussed later: 2 Mercury in fish tissue listings on lakes
Assessments for recreation on streams are based on bacteria data. Assessments for recreation on lakes are based on eutrophication (phosphorus, chlorophyll-a [algae], Secchi disk [clarity]) data.
MN DNR fish sampling and assessment for aquatic life on lakes; fewer are testing for aquatic life than aquatic recreation. Aquatic life stream assessment are based on a suite of parameters (slide 4).
Picture: Mississippi River at Blanchard Dam (impaired for aquatic consumption)

Assessment report: https://www.pca.state.mn.us/sites/default/files/wq-ws3-07010201b.pdf
Discussed later: 1 Mercury in fish tissue listing
Assessments for recreation on streams are based on bacteria data. Assessments for recreation on lakes are based on eutrophication (phosphorus, chlorophyll-a [algae], Secchi disk [clarity]) data.
Picture: Lower Spunk Lake, Stearns County (fully supporting of aquatic life and recreation)

MN DNR fish sampling and assessment for aquatic life on lakes; fewer are testing for aquatic life than aquatic recreation. Aquatic life stream assessment are based on a suite of parameters (slide 4).
There's lots of information on the MPCA's website on this watershed (https://www.pca.state.mn.us/water/watersheds/north-fork-crow-river). This is the second time this watershed has been assessed; it was one of the first when the MPCA switched to assessing by watersheds. See also http://www.crowriver.org/NorthFork1W1P.html.
List corrections for aquatic life impairments:

- Crow River, North Fork – 07010204-502 & -506 macroinvertebrates [bug community], -556 low dissolved oxygen (DO) & -685 DO, -687 macroinvertebrates [bug community], -764 fish community
- Sucker Creek – 07010204-682 turbidity [sediment]
- 47-0015-00 Jennie and 47-0082-00 Dunns delisted for mercury in fish tissue; not meeting aquatic consumption goals (discussed later)
- 86-0114-00 Waverly delisted for nutrients; now meeting recreation goals; restoration activities (installing sediment control basins to reduce runoff) contributed to improvement of water quality (also noted later)
Assessments for recreation on streams are based on bacteria data. Assessments for recreation on lakes are based on eutrophication (phosphorus, chlorophyll-a [algae], Secchi disk [clarity]) data.
MN DNR fish sampling and assessment for aquatic life on lakes; fewer are testing for aquatic life than aquatic recreation. Aquatic life stream assessment are based on a suite of parameters (slide 4).
Other assessments in the Upper Mississippi River Basin

- Statewide aquatic consumption
- Additional aquatic life

Picture: Pelican Lake, Crow Wing County (fully supporting recreation)

We found other impairments in the region.
Resulting from a statewide assessment of fish contaminants, there are some new impairments some delistings (waters not meeting standards).

- Pink = delisting, meeting goals (standards) for mercury in fish tissue
- Red = New listings, not meeting goals (standards) for mercury in fish tissue
- Brown = New listing partially within Mille Lacs, not meeting goals (standards) for mercury in fish tissue
- North Fork Crow delistings = Jennie and Dunnes (Meeker Co)
- Nothing new in South Fork Crow River watershed (not pictured)
Early in the watershed cycle, MPCA did not assess small streams/ditches in anticipation of new water quality standards for tiered aquatic life uses (TALU). After those standards (goals) were adopted the MPCA came back to about 400 ditch/stream segments, assessed, and found 265 aquatic life impairments across the state. Red lines not labeled are unnamed creeks. Nothing new in South Fork Crow River watershed (not pictured).
Picture: Plum Creek, Stearns County showing stream bank stabilization (fully supporting recreation); lots of work done by local partners, see https://www.pca.state.mn.us/featured/plum-creek-payoff

- Faille Lake (Todd Co) – reductions in phosphorus at Osakis WWTP
- Waverly Lake (Wright Co) – sediment control basins installed, one critical planting near the lake and a septic system upgrade.
• Picture: Gooseberry River (fully supporting aquatic life and recreation)
• Clean Water Act requirement after listing is to develop a TMDL (Total Maximum Daily Load) study; Minnesota has the resources to go beyond that.
• Assessment and the Impaired Waters List is not the end. It’s just one step in a larger effort to protect and restore Minnesota’s water. This effort is a collaborative one between state agencies, watershed districts, and local units of government.
• Source: https://www.pca.state.mn.us/water/watershed-restoration-and-protection-strategy-status
• Map of MPCA’s Watershed and Protection Strategy (WRAPS) status; goal to have all complete in 2023.
• The WRAPS is essentially a 10-year report process to identify what needs to happen within the watershed and where to both restore degraded water quality and protect good water quality; it is developed in coordination with partners that include staff from tribal, county, SWCD, and other state agencies; concerned citizens; and other interested groups.
Vision: BWSR’s (Board of Water and Soil Resources) One Watershed, One Plan will result in plans with prioritized, targeted, and measurable implementation actions that meet or exceed current water plan content standards.
• Picture: Mississippi River at Brainerd (impaired for aquatic consumption and aquatic life)
• Not an exhaustive list, just a couple examples of projects nearing completion.
• Minnesota’s Impaired Waters List webpage: https://www.pca.state.mn.us/water/minnesotas-impaired-waters-list
• Draft 2020 Impaired Waters List direct download: https://www.pca.state.mn.us/sites/default/files/wq-iw1-65.xlsx
• 2020 Assessment Guidance Manual (how we determine impairments) download: https://www.pca.state.mn.us/sites/default/files/wq-iw1-04k.pdf
• Impaired waters viewer: https://www.pca.state.mn.us/water/impaired-waters-viewer-iwav
• All MPCA’s lake and stream data and non-draft assessment information: https://cf.pca.state.mn.us/water/watershedweb/wdip/search_more.cfm
After comment period, take about 45 days to respond and make necessary changes to the List.

The MPCA is requesting comments on changes to the Impaired Waters List since 2018, as well as the Assessment Guidance Manual found at https://www.pca.state.mn.us/water/minnesotas-impaired-waters-list.

All comments and responses, along with the List and supporting documentation, will be submitted to US EPA by April 1, 2020 for their approval (as required by federal Clean Water Act).
Picture: Ochotto Lake, Stearns Co (fully supporting recreation)