



Source: NASA

## 7 Establish nitrate standards

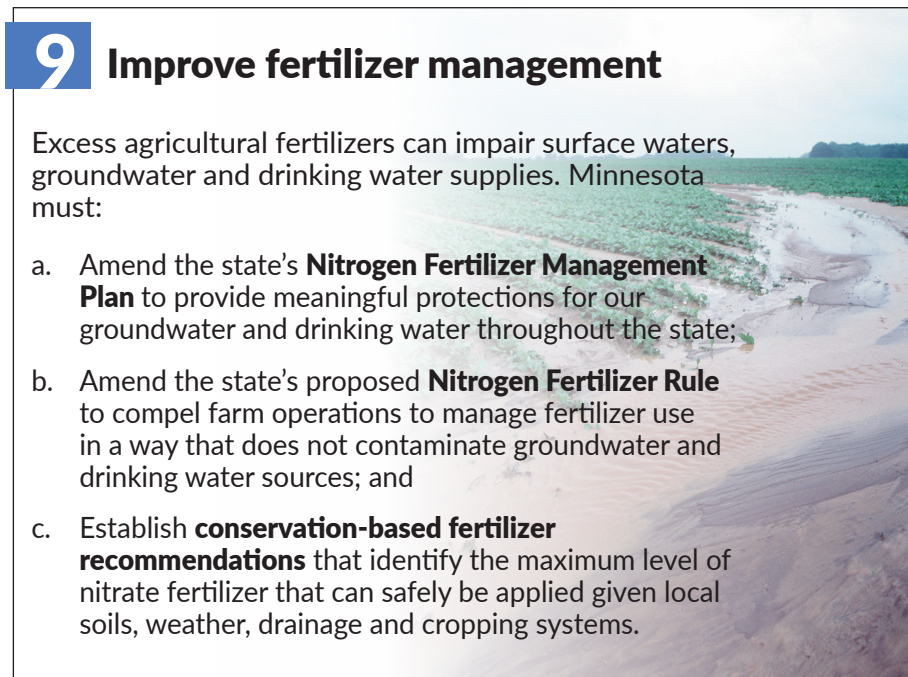
Nitrate pollution can compromise aquatic life and is especially problematic downstream in the Gulf of Mexico. The state cannot effectively control this pollutant without science-based water quality standards. The Minnesota Pollution Control Agency should adopt long-overdue nitrate standards to protect aquatic life in Minnesota's surface waters.



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## 8 Advance microplastics research

Continue research into the sources and impacts of microplastics in surface waters and identify effective reduction strategies.



## 9 Improve fertilizer management

Excess agricultural fertilizers can impair surface waters, groundwater and drinking water supplies. Minnesota must:

- Amend the state's **Nitrogen Fertilizer Management Plan** to provide meaningful protections for our groundwater and drinking water throughout the state;
- Amend the state's proposed **Nitrogen Fertilizer Rule** to compel farm operations to manage fertilizer use in a way that does not contaminate groundwater and drinking water sources; and
- Establish **conservation-based fertilizer recommendations** that identify the maximum level of nitrate fertilizer that can safely be applied given local soils, weather, drainage and cropping systems.

## 10 Develop a statewide pharmaceutical management plan

Unused and expired pharmaceuticals including prescription medications are frequently disposed of down the drain, exposing surface waters and groundwater to potential contamination. Old and unused medicines can also pose a risk for accidental poisoning, theft and drug abuse. Currently, pharmaceutical disposal programs vary greatly at the local level, and no statewide pharmaceutical management plan is in place.

The state of Minnesota should develop a statewide pharmaceutical management plan that includes a network of secure disposal sites and a comprehensive outreach and education program within the next five years.



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# STATE OF THE RIVER REPORT

## POLICY GUIDE

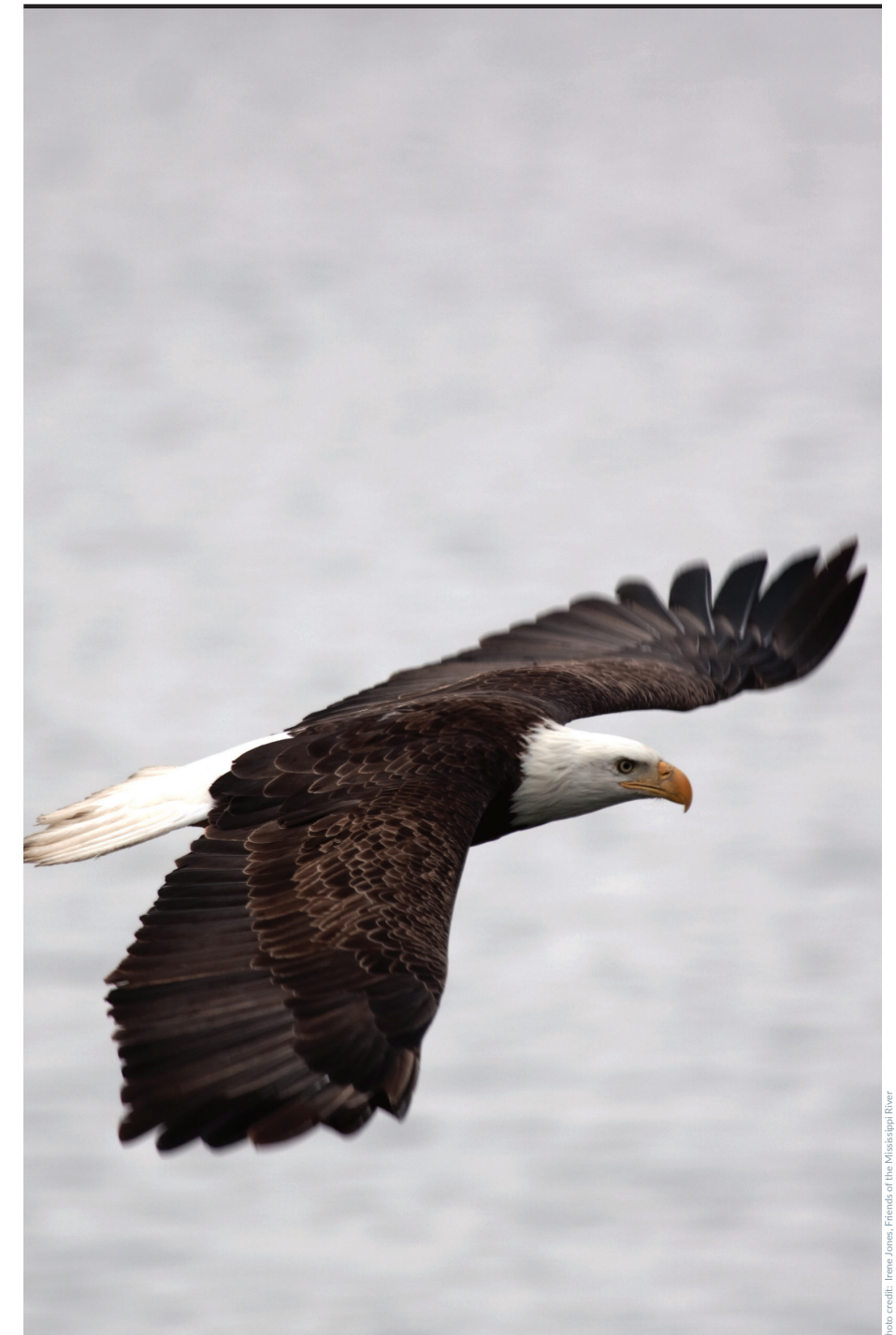


Photo credit: Irene Jones, Friends of the Mississippi River



The *State of the River Report* illustrates that, while in many ways the Mississippi River is cleaner and healthier than a generation ago, there are a number of river impairments and disturbing trends that must be reversed to restore the river.

In this Policy Guide, Friends of the Mississippi River highlights the top 10 policy actions that decision-makers can take to help protect and restore the metro Mississippi River.

While this list is far from comprehensive, the actions below represent excellent opportunities to greatly improve the overall health of the river by addressing many of the issues raised in the *State of the River Report*.

These recommendations will enhance public health and safety, improve river recreation, protect our drinking water, and enhance the economic vitality of communities throughout the Mississippi River watershed.



## 1 Promote perennial cropping systems

- Improve water quality and farm profits by incentivizing conversion from annual crops to market-based perennial crops.
- a. Implement the **Working Lands Watershed Restoration Program** to incentivize establishment of perennial crops and cover crops for use in biofuel production, green chemistry, biomass thermal energy and grazing programs;
  - b. Fully fund research and development of innovative, economically viable conservation crops through the **University of Minnesota's Forever Green** initiative; and
  - c. Adopt a **state biofuels standard** that requires one-third of the ethanol consumed in Minnesota automobile fuels be made from perennial crops and cover crops by 2025.



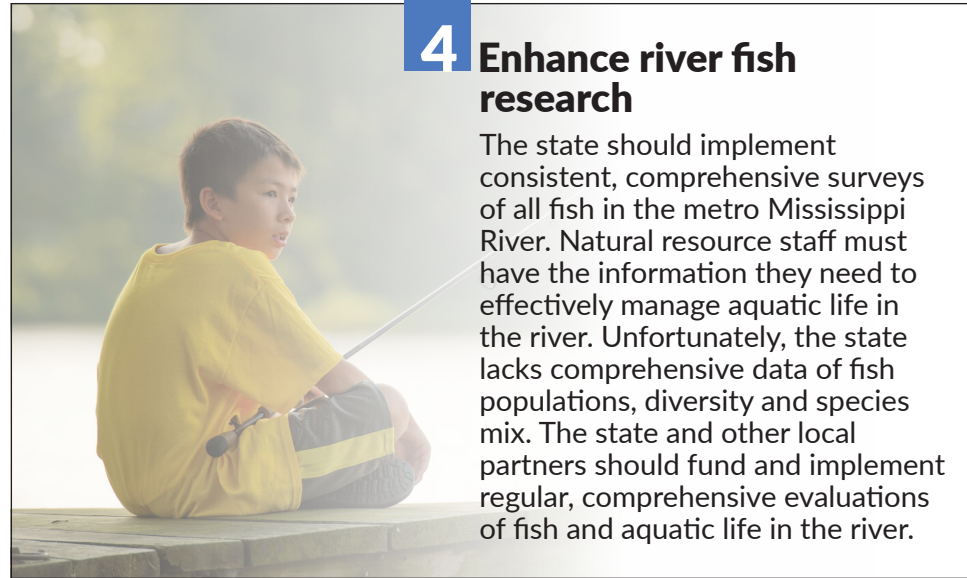
## 2 Improve chloride management

- The state should adopt comprehensive chloride reduction legislation. This legislation should provide ongoing support for the state's chloride management activities and include:
- a. **Full funding** to sustain and promote road salt application training for both public and private applicators;
  - b. **Elimination or reduction of liability** for private applicators who become certified in responsible salt application; and
  - c. **Research funding** to develop new technology and alternatives to chloride-containing deicing chemicals.



## 3 Continue bald eagle research

Provide long term funding for eagle health and population research. In addition, the state, in concert with local communities, should develop and implement river reforestation plans to ensure healthy regeneration of cottonwood and other prime nesting and perching trees.



## 4 Enhance river fish research

The state should implement consistent, comprehensive surveys of all fish in the metro Mississippi River. Natural resource staff must have the information they need to effectively manage aquatic life in the river. Unfortunately, the state lacks comprehensive data of fish populations, diversity and species mix. The state and other local partners should fund and implement regular, comprehensive evaluations of fish and aquatic life in the river.



## 5 Implement comprehensive drain tile reform

- In many cases agricultural drainage systems (drain tile) can be installed in crop fields without permits, reporting or any conservation requirements. The state should adopt legislation that includes the following:
- a. **Required permits** for all new drain tile installations, so that state and local water managers can better understand the extent of these systems and their potential impacts on water quality and river hydrology;
  - b. **Required or incentivized conservation** systems installed on all new drain tiles, to better mitigate the impacts of artificial drainage; and
  - c. **Comprehensive mapping** of existing drainage systems to better manage and mitigate their impacts on surface waters.

## 6 Control invasive Asian carp

- Continue to fund research into how modifying flow through dam gates and installing carp-deterrent technologies such as bubble, electric and acoustic barriers in the locks can be most effective.
- a. The Army Corps of Engineers should **modify lock operations** to reduce recreational traffic wherever feasible, and manage lock operations to incorporate our growing understanding of Asian carp behavior, migration patterns and biology; and
  - b. **Enhance long-term funding** for research into the behavior and biology of Asian carp.

