

OF DEAD ZONES & DRINKING WATER:

FARMING'S WATER QUALITY CHALLENGES

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 POLICY MATTERS

WATER QUALITY CHALLENGES

○ Gulf of Mexico Hypoxia

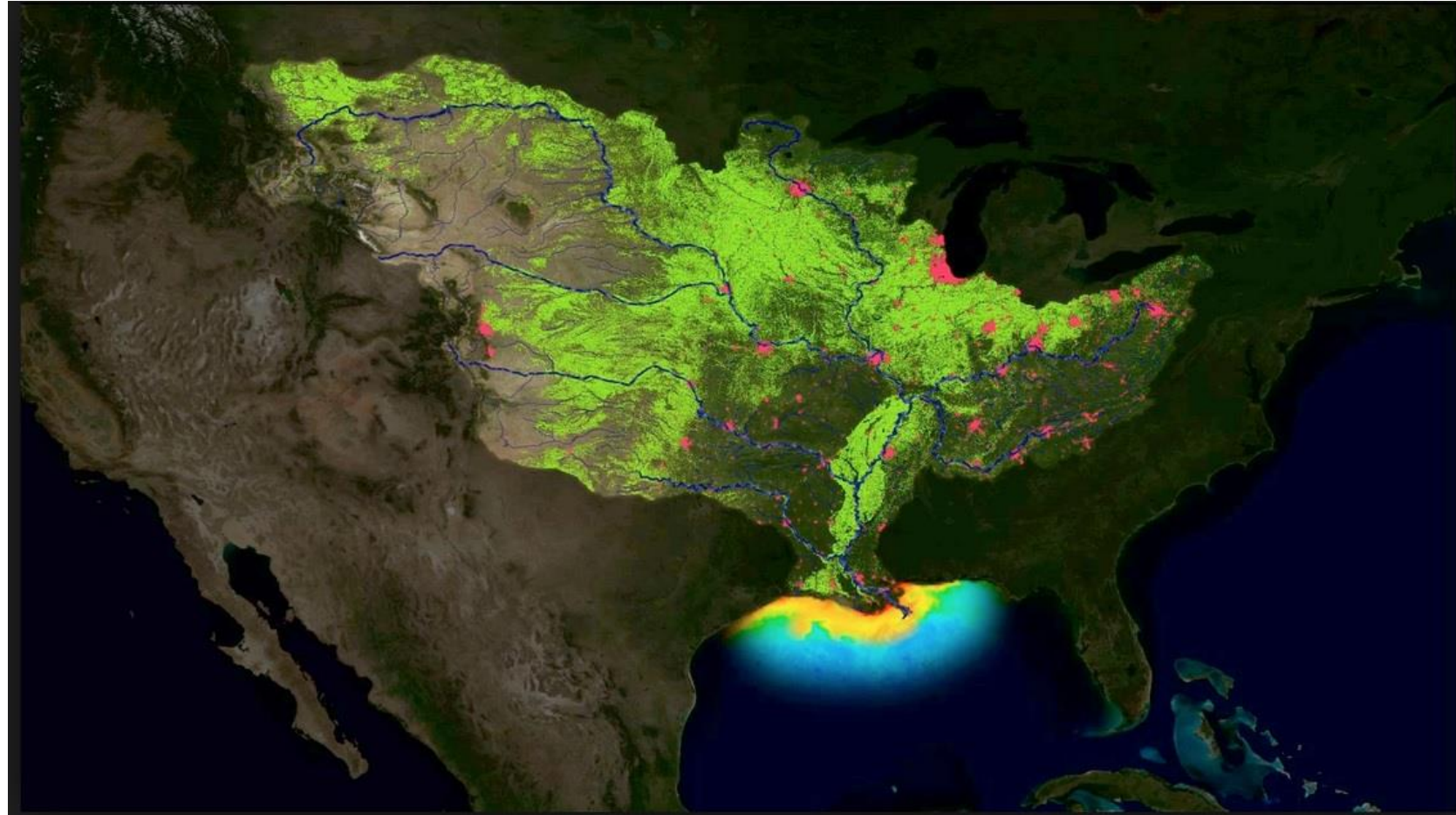
○ Des Moines Waterworks Lawsuit

○ Reducing Nutrient Losses from farming



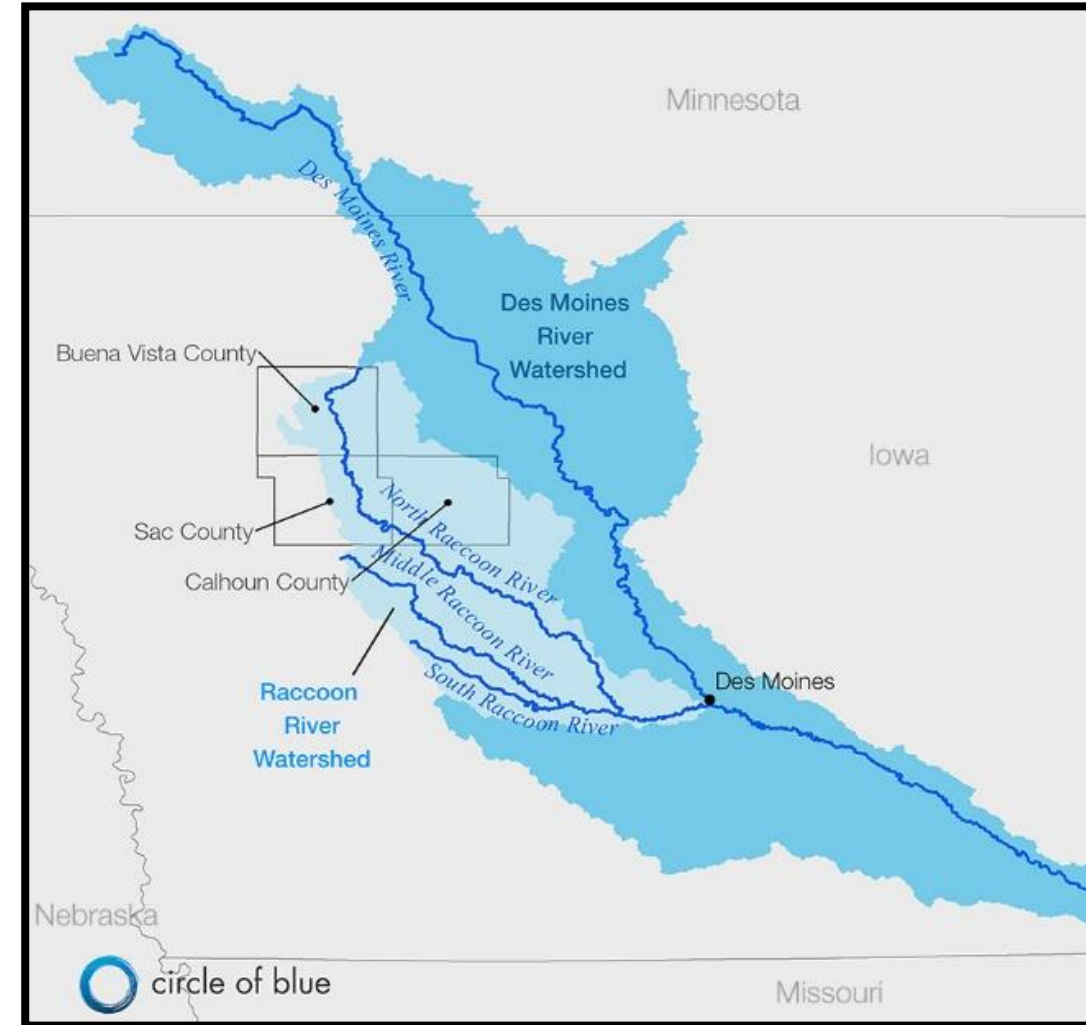
GULF HYPOXIA & THE MISSISSIPPI RIVER BASIN

- ❖ **Third largest drainage basin in the world; Drains 41% and 31 of the 48 contiguous states; 242 million acres of cropland**
- ❖ **242 million acres of cropland; \$54 billion in agricultural products and 92% of the nation's farm exports.**
- ❖ **Hypoxia or dead zone: over 5,000 square miles in 2014.**
- ❖ **Agriculture may contribute 70% of the delivered nitrogen and phosphorous; estimated that Nitrogen losses could be 17 to 41 lbs. N per acre.**



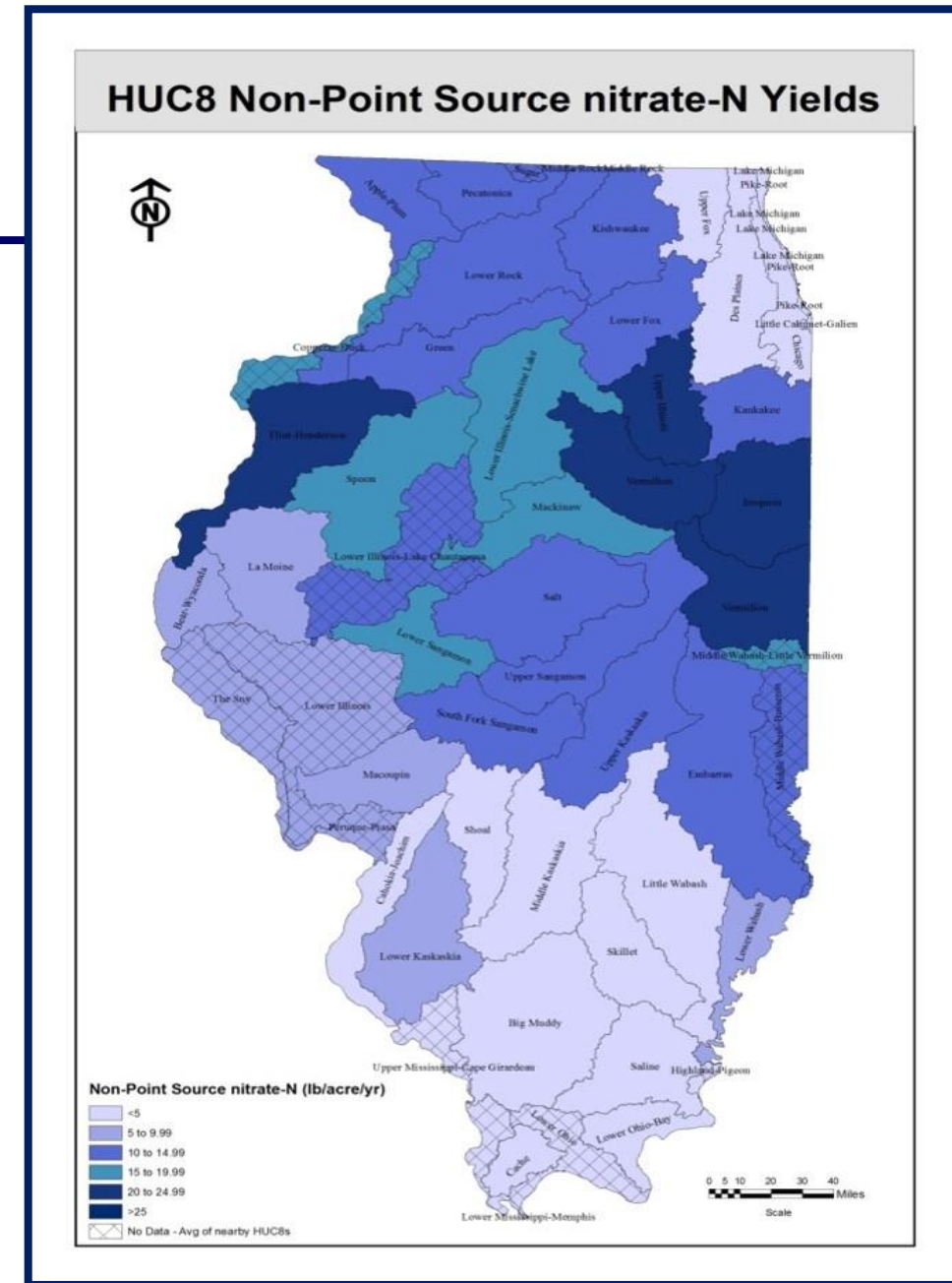
Des Moines Waterworks Lawsuit

- ❖ **Clean Water Act:** agricultural storm water discharge is a nonpoint source; not subject to regulation
- ❖ **DMWW's novel legal theory:** district drainage is 'artificially drained groundwater' not storm water = a point source
- ❖ **Costs:** \$4.1m on nitrate removal equip; \$7,000 per day to operate; new equip at \$76m to \$183.5m; spent \$1.5m since Dec. 2014
- ❖ **Drainage Districts:** local government; public utility; tax/assessment & eminent domain



Nutrient Loss Reduction

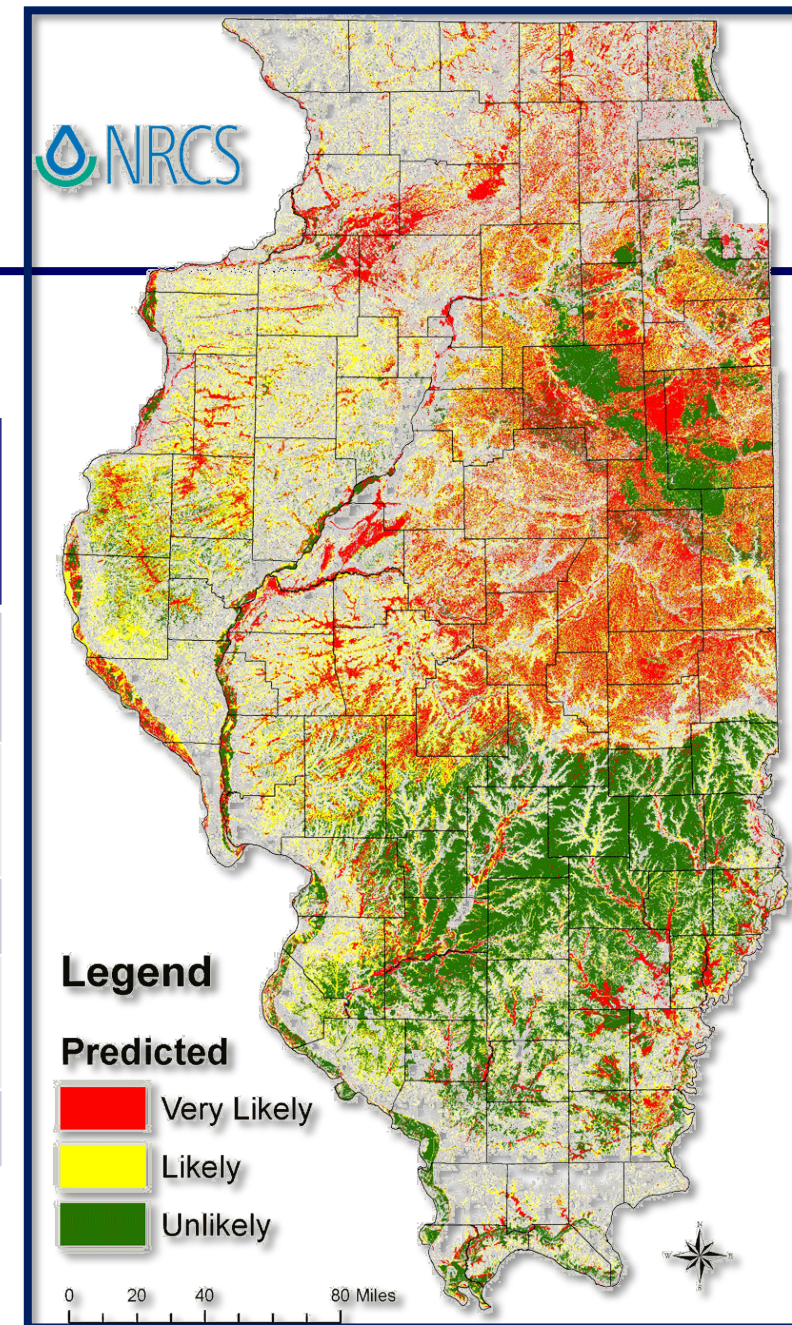
- ❖ **Gulf Hypoxia Task Force: 45% reduction in nutrient loading.**
- ❖ **Illinois contributes 20% of nitrate and 11% of phosphorous.**
- ❖ **Goal is a 15% Nitrate reduction by 2025 with ultimate goal of 45% reduction; could cost as much as \$800 million annually.**
- ❖ **Est. 9.7m acres of tile-drained farmland; over 22m acres total; 440m pounds N lost each year = 82% of total**



Illinois Nutrient Loss Reduction Strategy

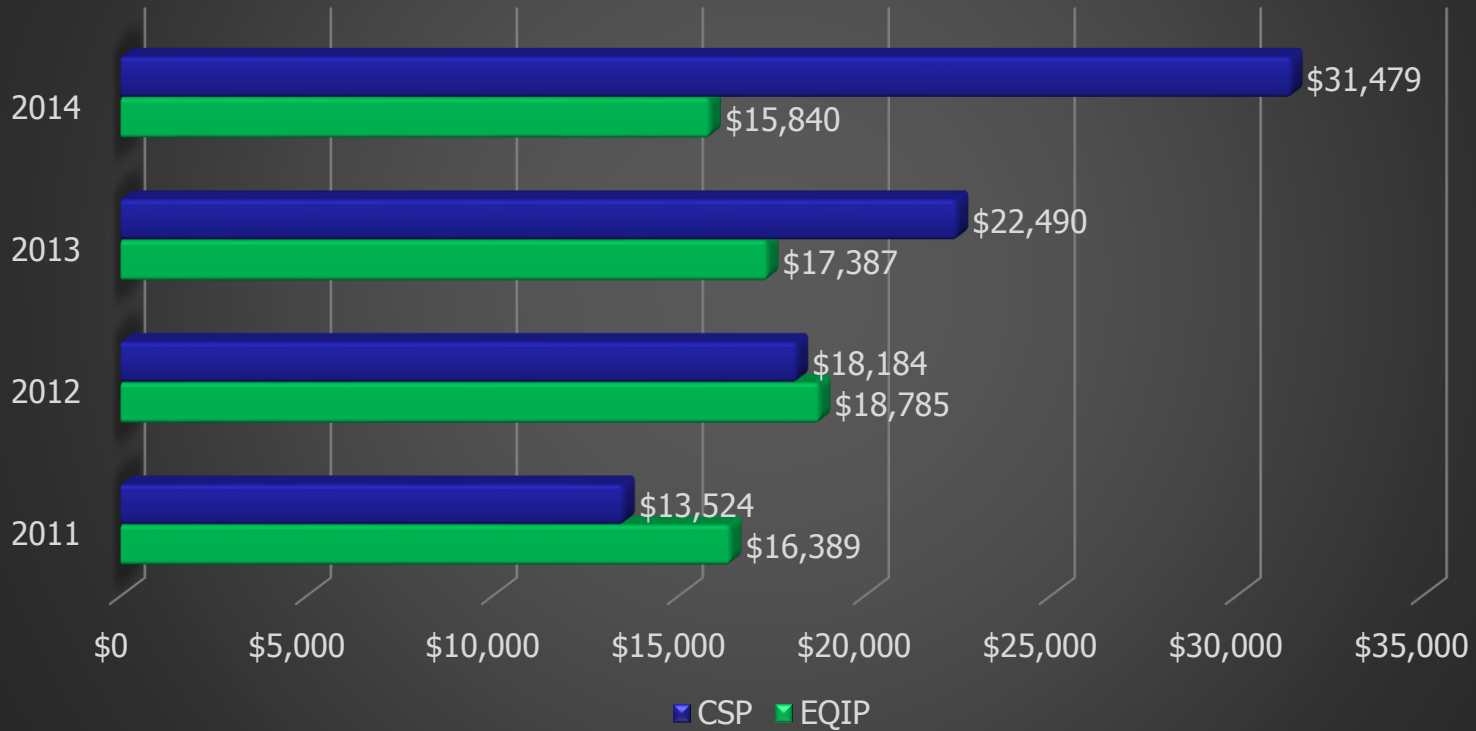
Science Assessment: Examples of practices for N Reduction

Practice	Per Acre reduction	Total (million lb)	From baseline	Cost per lb N
Nitrification inhibitor-fall applied, tilled corn	10%	4.3	1.0%	\$2.33
Cover crops-all corn/soy tilled	30%	84	20.5%	\$3.21
Wetlands-25% of tilled	40%	28	6.8%	\$5.06
Buffers on all applicable land	90%	36	8.7%	\$1.63
Bioreactors-50% of tilled	40%	56	13.6%	\$1.38



Conservation Programs

IL Conservation Investments (Thousands)

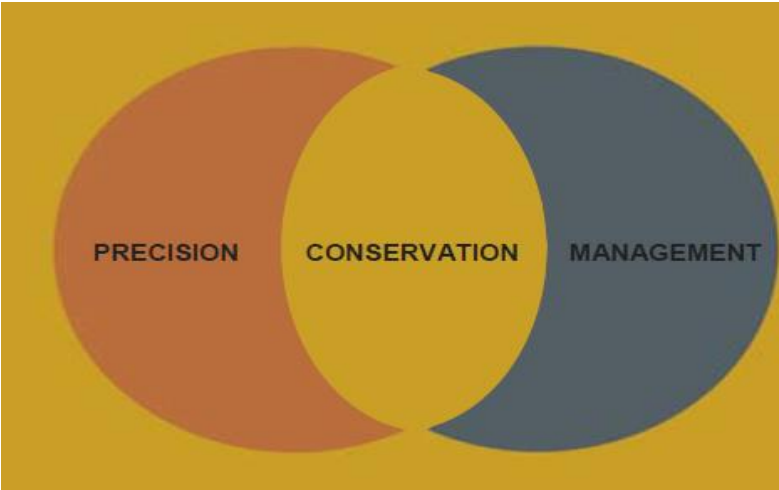


Source: NRCS



TM

Regional Conservation Partnership

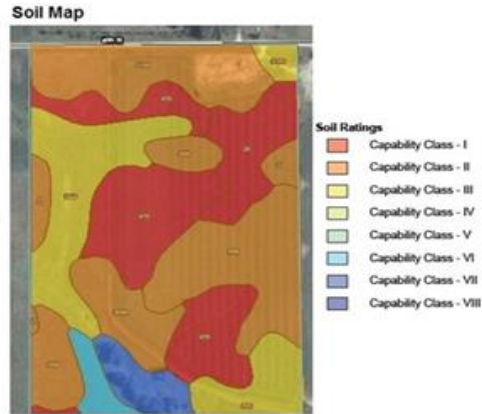
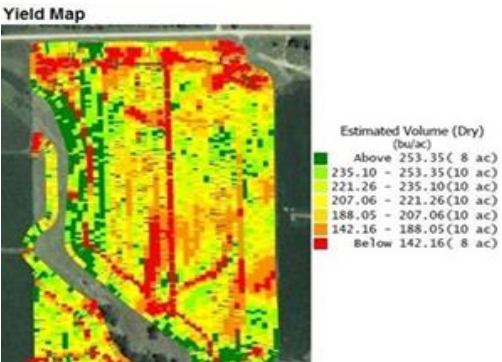


Farm
Business
Management



Address
Conservation
Challenges

Precision
Agriculture
Technology



THANK YOU!

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