

Water Quality in Illinois: A 2009 Perspective

Paul Terrio

U.S. Geological Survey

Illinois Water Science Center

⇒ With the assistance of many gracious volunteers!

“*Water Quality*” is subjective

- ◆ Point of reference or background
Upbringing, environment, experiences
- ◆ Opinion and ideology
Use, management, protection / restoration
- ◆ Needs and goals
Health, recreation, uses, environmental
- ◆ Allegiance and livelihood
Employment, politics, dependence (restrictive v. relaxed)

◆ Physical

Aesthetics, temperature, dissolved oxygen, turbidity...

◆ Chemical

Nutrients, ions, organic compounds, trace elements, pharmaceuticals, sediment...

◆ Biological

Microbial, fish and bugs, algae and plants, habitat, humans and wildlife

Illinois Integrated Water Quality Report and Section 303(d) List – 2008

(IEPA/BOW/08-016)

Designated Use	Miles Assessed	Percent Assessed	Percent Fully Supporting (Good)	Percent Not Supporting (Fair)	Percent Not Supporting (Poor)
Aquatic Life	15,314	21.5	61.1	34.8	4.1
Fish Consumption	3,827	5.4	0.0	91.9	8.1
Indigenous Aquatic Life	85	100	38.2	55.1	6.7
Primary Contact	3,915	5.5	18.9	36.2	44.9
Water Supply	1,108	100	9.0	91.0	0.0
Secondary Contact	740	1	100	--	--
Aesthetic Quality	0	0	--	--	--

Perceived Issues

We tend to identify those issues which:

- 1) have a personal impact
- 2) have a professional implication
- 3) We hear about most often

Water Quality Issues – perceived

- #1 **Sediment** – erosion, transport, deposition
- #2 **Nutrients** – excessive algal growth, eutrophication, transport to the Mississippi and the Gulf of Mexico
- #3 **Runoff** - Agricultural and Urban (Non-point)
 - Pesticides, Pharmaceuticals, Antibiotics, Pathogens

Potential Impairment Top 10 List – Streams

<u>Potential Cause of Impairment</u>	<u>Stream Miles Impaired</u>
1. Fecal Coliform	3,175
2. Oxygen, Dissolved	3,079
3. Mercury	2,941
4. Polychlorinated biphenyls	2,821
5. Alteration in stream-side or littoral vegetative cover	2,261
6. Sedimentation / Siltation	2,259
7. Phosphorus (Total)	2,092
8. Manganese	1,885
9. Total Suspended Solids	1,580
10. Cause Unknown	1,325

Potential Impairment Top Ten List – Lakes

Potential Cause of Impairment

Acres Impaired

Fecal Coliform

11. Oxygen, Dissolved

12,221

4. Mercury

71,589

8. Polychlorinated biphenyls

25,817

Alteration in stream-side or littoral vegetation

10. Sedimentation / Siltation

13,925

1. Phosphorus (Total)

109,078

5. Manganese

67,185

3. Total Suspended Solids

105,390

9. Cause Unknown

17,128

2. Aquatic Algae

106,680

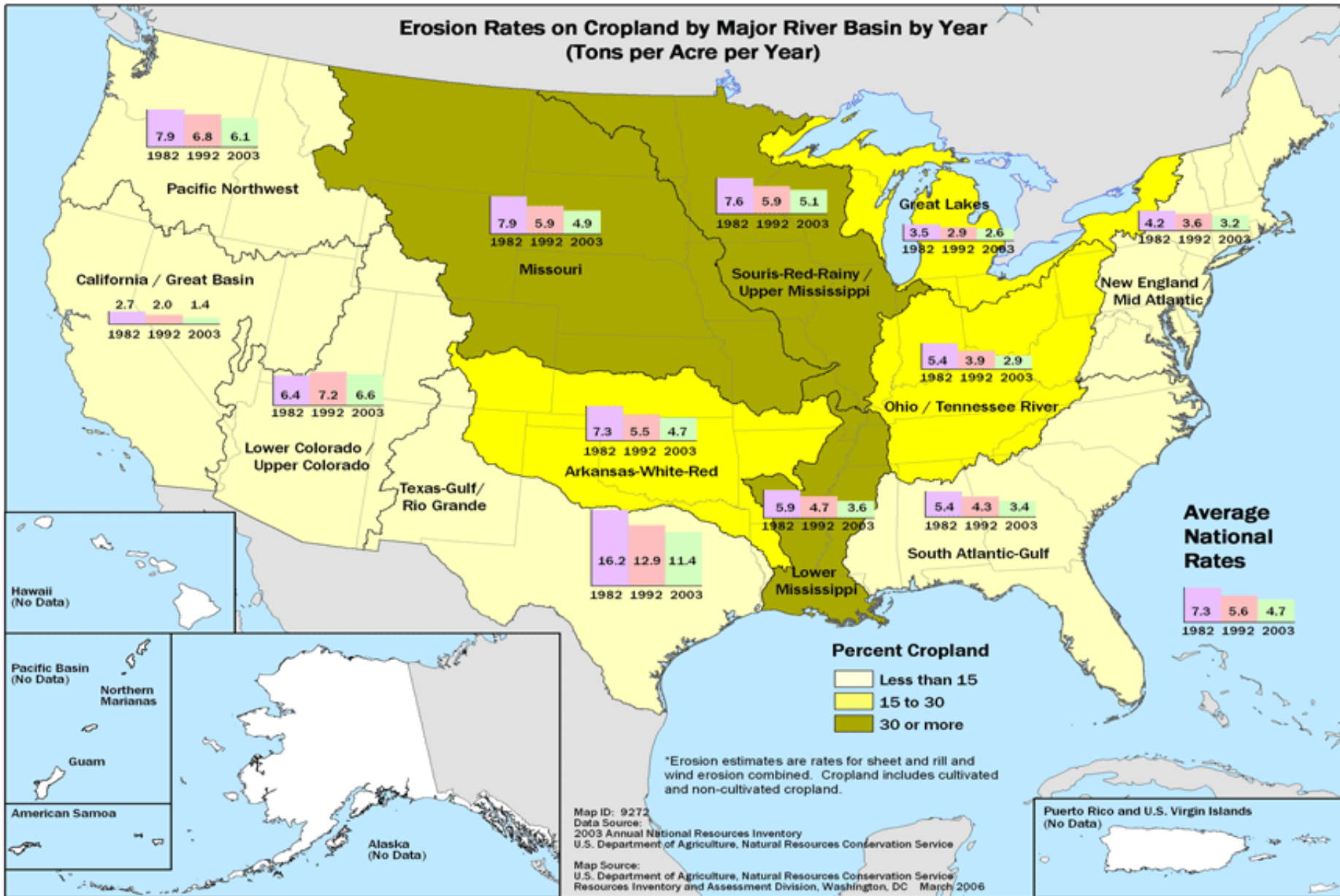
6. Atrazine

26,997

7. Aquatic Plants

26,992

Erosion Rates on Cropland by Major River Basin by Year (Tons per Acre per Year)



Successes (continued)

- ◆ Pesticide use reduction / improvement
 - Reformulations, Restrictions, Discontinuance
 - Genetically engineered crops

- ◆ Monitoring efforts
 - Improved capabilities and equipment
 - Increased efforts and Volunteer participation
 - Realization of need and benefits

Successes (continued)

- ◆ Education and Awareness
- ◆ Interagency Cooperation and Coordination
 - Generally issue-specific, not programmatic

NATIONAL GEOGRAPHIC NEWS

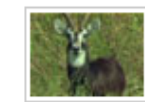
REPORTING YOUR WORLD DAILY

TODAY'S BEST NEWS PHOTO



[Photo Gallery: Gold-Mining, Burial Artifacts Unearthed on Nile](#)

VIDEO IN THE NEWS



[Video: Massive Antelope Herds Seen From the Air in Sudan](#)

- News Front Page
- 5 Most Popular News Stories
- Photos in the News
- Videos in the News
- Animals & Nature News
- Archaeology & Paleontology News
- Environment News
- Health News
- History & Culture News
- Weird News
- Science & Space News
- Travel & Adventure News

[News Front Page](#) > [Animals & Nature](#)

Male Fish Producing Eggs in Potomac River

William Coker
for National Geographic News
November 3, 2004

Something fishy is happening in the headwaters of the Potomac River. Scientists have discovered that some male bass are producing eggs—a decidedly female reproductive function.

In June 2002 reports appeared of fish die-offs in the South Branch of the Potomac River. The West Virginia Division of Natural Resources asked U.S. Geological Survey (USGS) scientists to examine fish health in the watershed near the town of Moorefield, about three hours' drive from Washington, D.C.

[Email to a Friend](#)

RELATED

- [Evolutionary Oddities: Duck Sex Organ, Lizard Tongue](#)
- [Pesticides, Parasite May Cause Frog Deformities](#)
- [Hermaphrodite Frogs Caused By Popular Weed Killer?](#)

Anglers were also reporting fish with lesions. USGS scientists determined that some of the lesions indicated exposure to bacteria and other contaminants.

The following year, the USGS conducted a more intensive assessment with a statistically significant number of fish, this time looking for internal damage. That's when they discovered a so-called intersex condition—where one sex exhibits both testicular and ovarian tissue.

"It was not something we were really

TODAY'S MOST POPULAR NEWS STORY



[Pluto Smaller Than Dwarf Planet Neighbor Eris, Study Finds](#)

ADVERTISEMENT

Presented by:

Roll Over

A Safari is closer than you think...

LATEST PHOTOS IN THE NEWS



[Photo Gallery: Gold-Mining, Burial Artifacts Unearthed on Nile](#)



[First Giant Manta Ray Born in Captivity](#)

PODCAST

Impediments

#1 = FINANCIAL RESOURCES!

Diminishing resources for programs, monitoring, incentives, enforcement, education, assistance

- ◆ Education and Awareness
 - Inadequate understanding among different communities
 - Education of issues and opportunities
- ◆ Coordination not Competition
 - individuals, agencies, communities, interests
- ◆ Inflexibility
 - established system unable to respond to new issues
 - Engrained mindsets with little incentive to consider change
- ◆ Political and Legislative will

Established Conventions and Methodologies

(CWA, Standards, Assessments, TMDLs, Permits
and Incentive-based programs)

- ◆ Inadequate system based on historical issues of concern – need new flexibility and capabilities
- ◆ Good system of checks and balances – ensures adequate protection of people and the environment
- ◆ Inconsistent and unfair system without needed tools.