

Watershed Stewardship

Tidbits

Dan Downing

University Outreach and Extension

573-882-0085

downingd@missouri.edu



OUTREACH & EXTENSION

**UNIVERSITY OF MISSOURI
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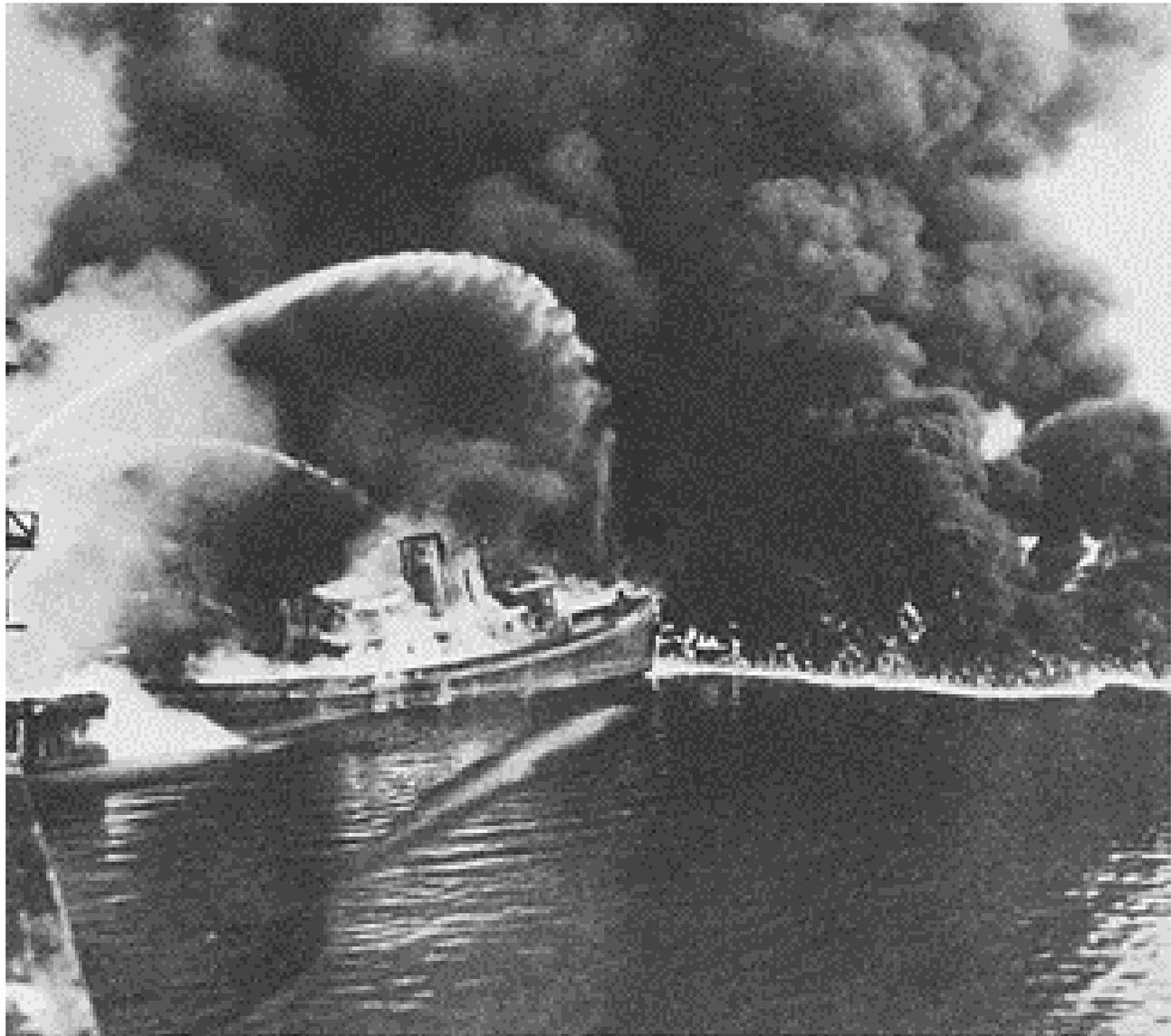




THE BIG TWO

Clean Water Act

Safe Drinking Water Act



CLEAN WATER ACT -1972

- RAW WATER STANDARDS
 - IMPAIRED WATERS – 303(d) list
 - TOTAL MAXIMUM DAILY LOADS (tmdl)

- STORM WATERS STANDARDS
 - PHASE I
 - PHASE II

SAFE DRINKING WATER ACT – 1974

- STANDARDS FOR POST-TREATMENT DRINKING WATER – ALL PUBLIC WATER SUPPLIES
 - INCLUDING:
 - DIS-INFECTION BY-PRODUCTS
 - HALO-ACETIC ACIDS
 - TRI-HOLOMETHANE
 - RESIDUAL DIS-INFECTION - CHLORINE
 - MAXIMUM CONTAMINANT LEVELS
 - PESTCIDES, ETC...MOST NOTABLE
 - ATRAZINE – 3 PARTS PER BILLION (PPB)

FEDERAL CLASSIFICATION

- POINT SOURCE (PS)– Highly regulated since 1960s – Cuyahoga River -Epitome
 - Target Corporate & Municipal Entities
- NON-POINT SOURCE (NPS)– Recent regulation, much less stringent than P.S.
 - Decentralized, Many Contributors
 - Target Private Land owner/citizen

Water Supply Standard

- Drinking Water
 - (treated water)
- Raw Water –
 - Untreated – “Waters of the State”

7 INTENDED USE CATEGORIES

- THREE BOAD CATEGORIES
 - FISHABLE
 - SWIMABLE
 - DRINKABLE

TOTAL MAXIMUM DAILY LOAD – TMDL

- Determine intended use for the waters of the state.
- Does it meet the standard(s)
- If not, what is the impairment
- Set/Write TMDL – a targeted value
 - MDNR Public Involvement Plan
 - X amount of plans each year

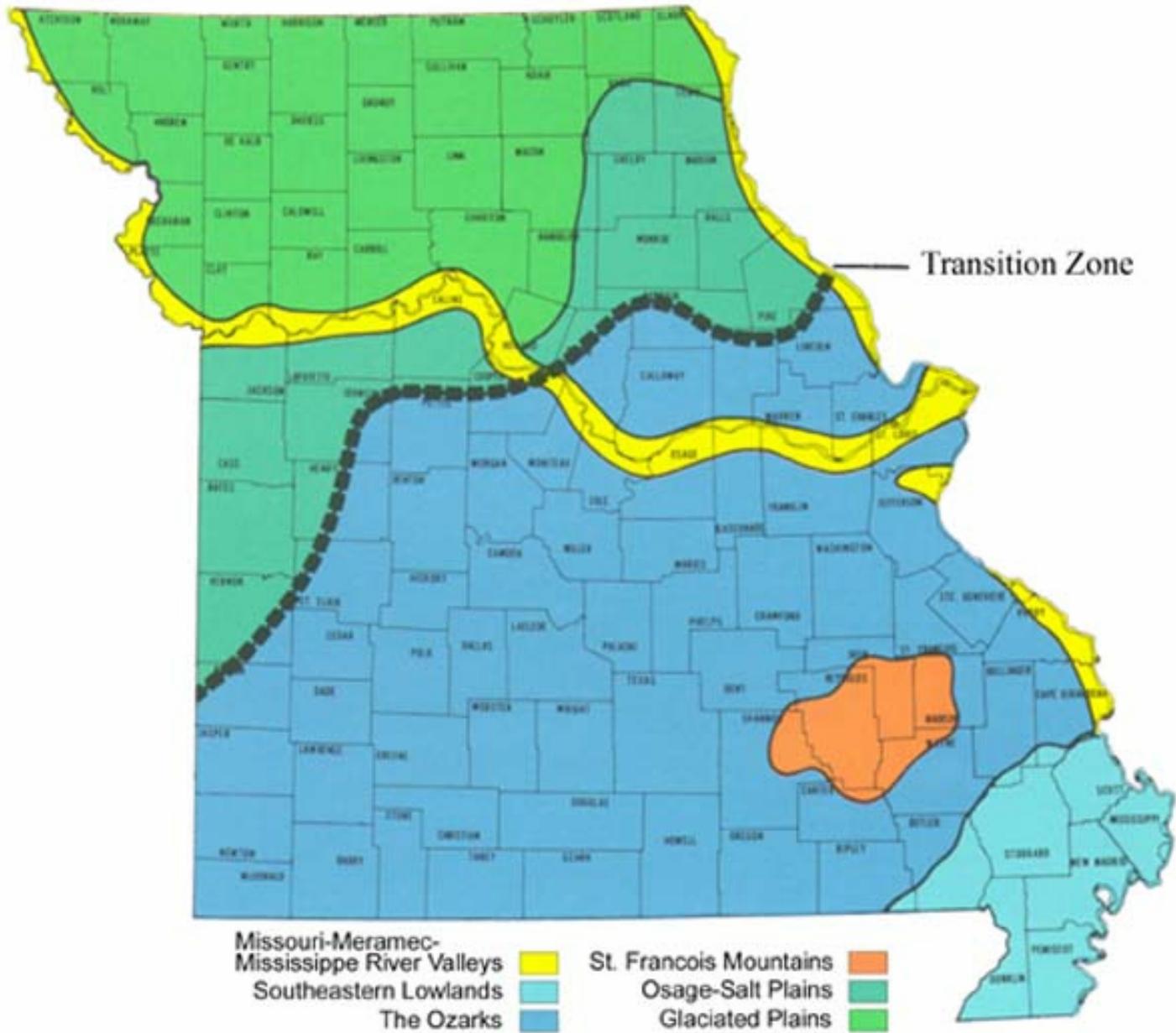
Balancing Act Required

- Balance the need for environmental, economic and social needs.
- Who should make these decisions
- Where do we go for assistance and information
- Do we need more regulations

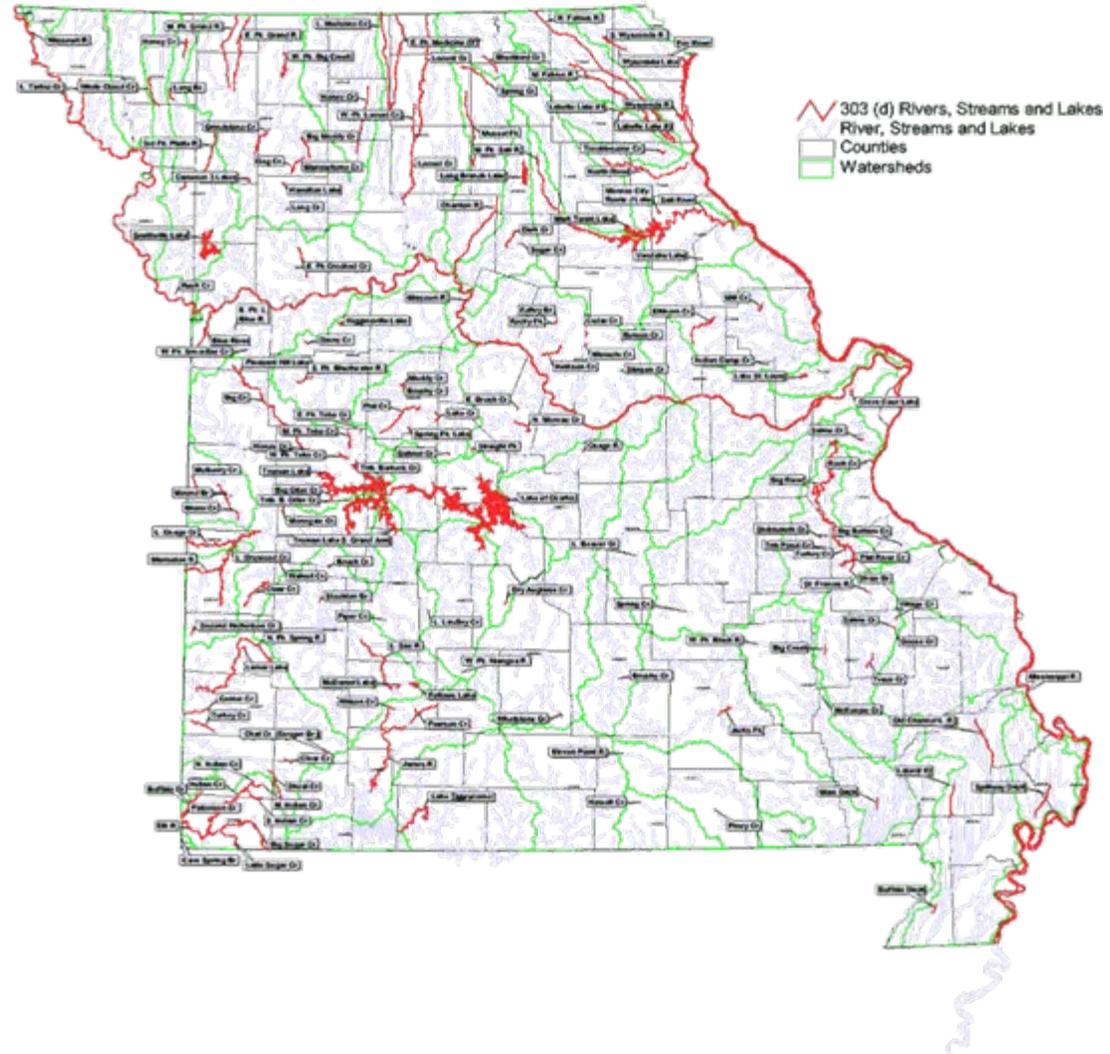
Missouri Water Supply:

- 63% get their water from surface water supplies
- 37% get their water from ground water supplies
- More than 1 million citizens are on private supplies

Ground-Water Regions of Missouri



1998 303(d) LISTED WATERS, 2002 LIST ALMOST DOUBLE



Typical Water Quality Issues

- Bacteria/Nutrients
- Pesticides
- Sediment

Community Development - is a process to educate, counsel, promote, and cooperate with communities (people) as they develop assets to seek solutions and solve problems, directly or indirectly affecting quality of life.



Community Development:

- **People** oriented - people have the right to control their destiny.

- **People** learn through interaction & participation

- **Holistic Community Development** – consider all aspects of the community, i.e. human resource development, economic development, environmental quality, infrastructure development, and public safety

Comprehensive Watershed Management's fundamental approach is the integration of organizations and individuals which have environmental knowledge, skills and resources in the following areas:

- Water Quality
- Comprehensive Planning
- Land Use Issues
 - residential – housing/onsite sewage
 - agricultural – farming/forestry
 - recreational
 - economic development – business & Industry
 - retention/expansion
 - etc.
- Human Resource Development



Comprehensive Watershed Management planning efforts are successful when many people, agencies, and organizations can work together on a basis of a common understanding.



University Outreach & Extension should be a logical partner in facilitating the development of networks and relationships relating to Grassroots Comprehensive Watershed Management Planning efforts.

From Planning To Action

Smithville Lake

Vandalia

Shelbina

Community X

**Jacks Fork, Shoal Creek,
Elk River**

Dan Downing, Project Coordinator
University Outreach & Extension
Downingd@Missouri.edu (573) 882-0085

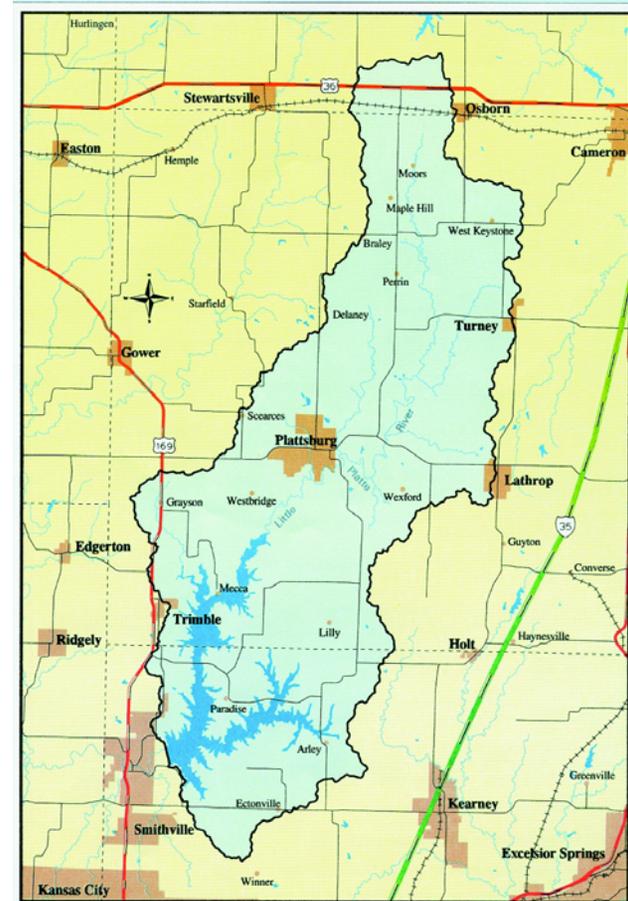
Smithville Lake

**Drinking Water Supply 15,000+
Smithville & Plattsburg
6 Rural Water Districts**

**126,000 Acre Watershed
7,430 Acre Impoundment**

Little Platte River

Kansas City Access



Course of Action

Solicitation of Support & Membership

Establish Committee

Educational Programming

Issues Identification

Who's Lake is it?

Urban Sprawl

Ag. Non-point source

Accomplishments

Established ongoing committee

Developed and distributed promotional material

Drafted and produced a watershed management plan

Secured not for profit status

Pursuing ongoing financial support

Vandalia

**Drinking water supply
for approximately 2,000**

**Back-up supply for Mo.
Dept. of corrections
facility**

**Back-up for Clarence
Cannon Wholesale
Water Commission**



3,660 Acre Watershed

38 Acre Impoundment

Focal Point - Pesticide Reduction

Began forming committee spring 1996

Novartis voluntary monitoring program

Raw water Triazine detects 85 ppb+ - 1997

Concentrated water treatment effort

Community/Producer education

Watershed management plan development

Environmental Quality Incentive Program (EQIP)

Enhance monitoring program included sediment basin sampling

Monitoring Results

1997 - Highest detect 85 ppb+

1998 - Highest detect 8 ppb

Sediment Basin detect at 17 ppb

1999- Highest detect 6 ppb

2000 - Highest detect 6ppb

Ongoing Efforts

Pursuing funding for system assessment

Pursuing a hazardous waste collection effort

City of Shelbina

Pro-active / preventative

No immediate issue

Established technical group

**Secured watershed/reservoir
assessment grant**

Educational Update

**Solicitation of land owner
involvement**



Watershed management plan developed

Land owner input

Assessment information

Working group information

Financial support

604(b) grant funds – seed money

Environmental Quality Incentive Program (EQIP)

Missouri Conservation Reserve Enhancement Program

Community – X

Situation Profile

350 Acre Watershed

7 Acre Reservoir

Drinking water supply for 500 people

1994 Elevated pesticide levels – warning

1996 Notice of violation issued

Actions taken

Discussion groups – resulting in Atrazine alternative cost share program

Terraces / buffer strips installed

Flushing of the reservoir – by municipality

1998 - Cost share incentive ended

Focus on water situation diminished

1999 Second Notice of Violation Issued – by Missouri Department of Natural Resources

Missouri Department of Agriculture investigation conducted

1 individual utilizing questionable practices

1 individual flagrantly violating label regulations

Probationary use restrictions issued

Punitive fine imposed

Flushing of reservoir - municipality

Missouri Corn Growers Association – Became active with individual pesticide management plans

TMDL Streams - Jacks Fork, Shoal Creek, Elk River

- Listed as impaired
- Nutrients and/or bacteria
- Very rural
- Homogeneous communities

Accomplishments

- Diffuse Emotion
- Common Understanding
- Input – from the start
- Identify Project
- Getting the facts out
- Common Benefit
- Develop - Trust
- Pursue Funding & Implementation

Summary / Conclusions

Local buy in is vital

Regulation enforcement is one component

Each situation includes different dynamics

**Multiple approaches to voluntary compliance
are necessary**

THANK YOU