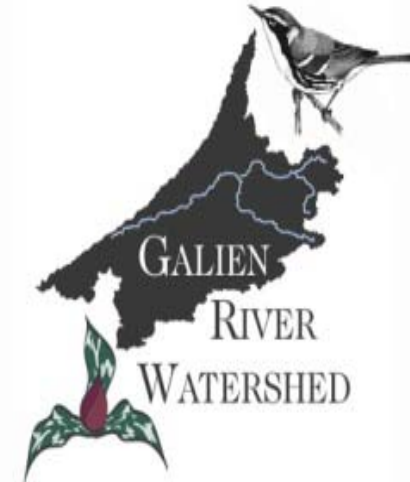
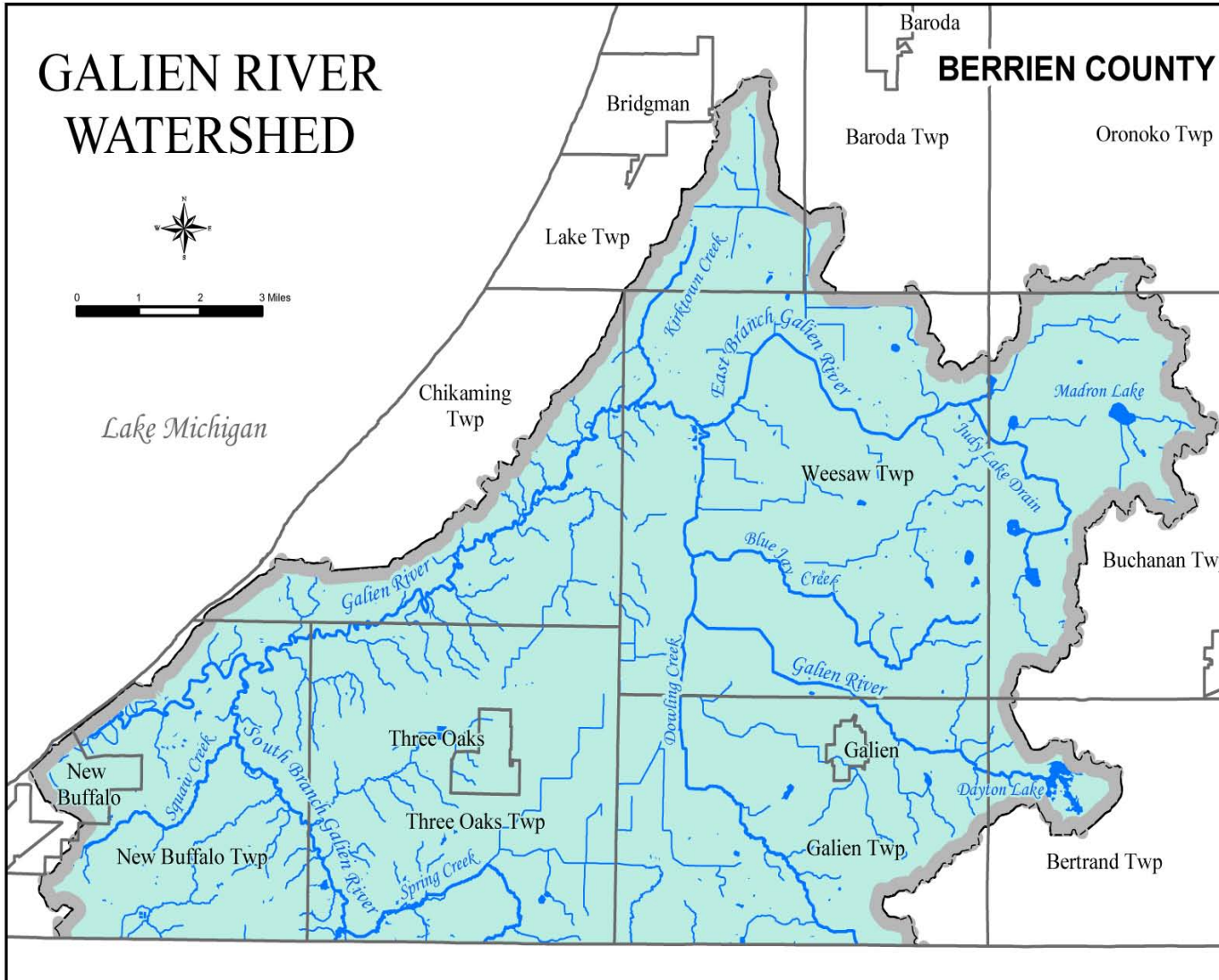


# Welcome!

## GALIEN RIVER WATERSHED



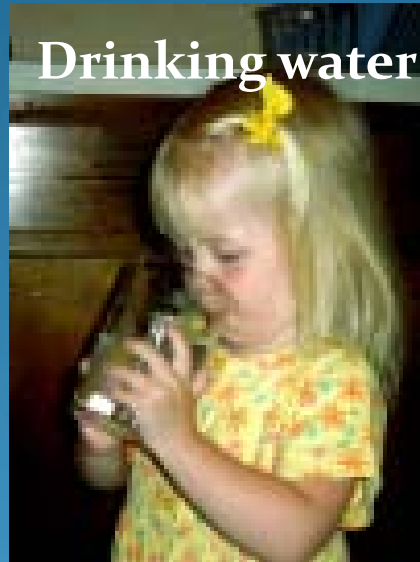
# Workshop Overview

- 6:00 – **Welcome/Introductions** – Marcy Colclough, *Southwest Michigan Planning Commission*
- 6:15 – **The Bad and The Ugly – Polluted Waters!** – Marcy Colclough
- 6:30 – **Galien's E. Coli Problem** - Peg Kohring, *The Conservation Fund*
- 7:00 – **Caring for Your Septic** – Ken Priest, *Berrien County Health Department*
- 7:20 – **Nitrate Test – What it Means?** – Wesley Reith, *Southwest Michigan Planning Commission*
- 7:30 – **Open House – Water Testing and Q&A**

# Do you want to keep...?



Fishing



Drinking water



Playing in the water



Swimming

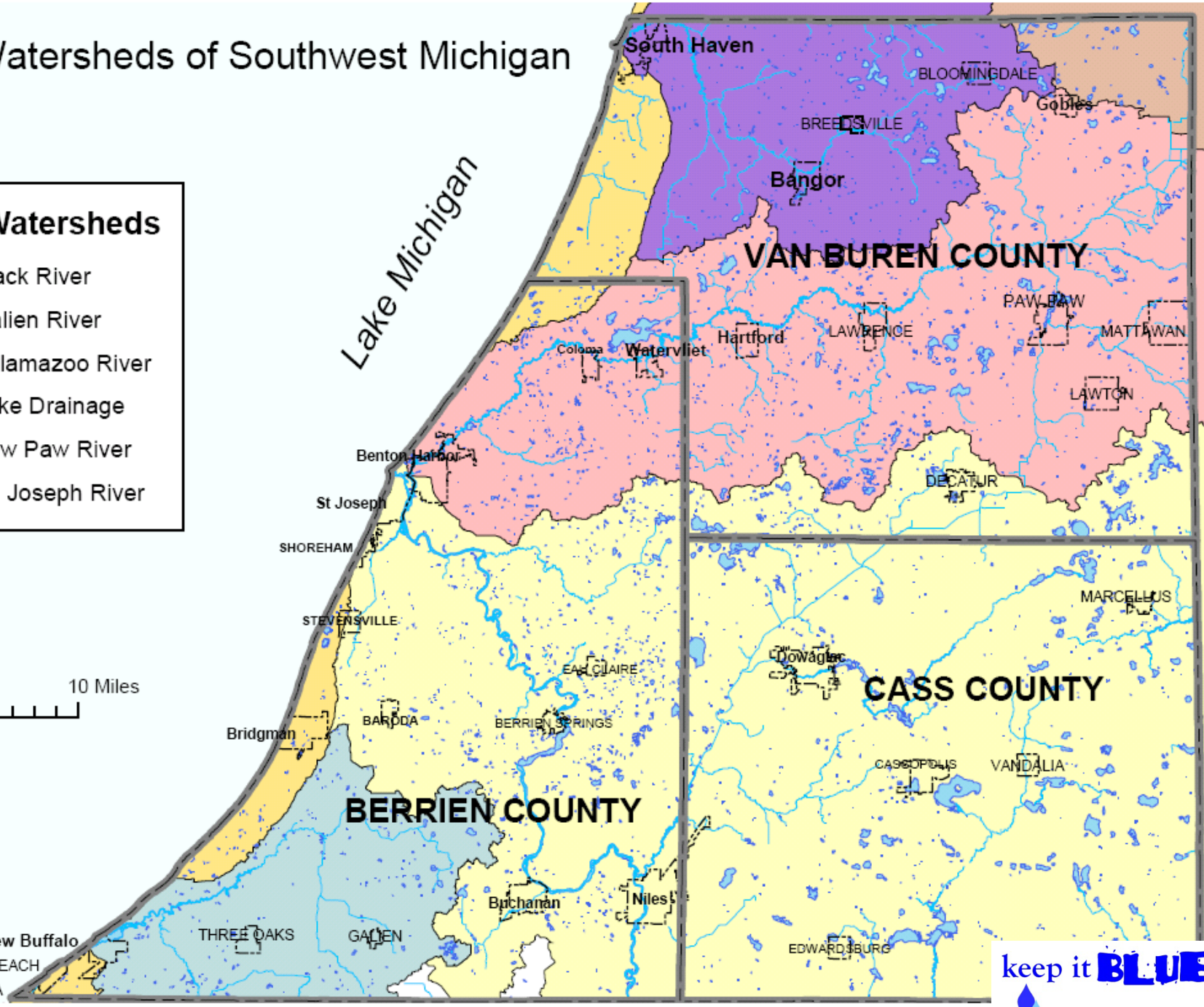
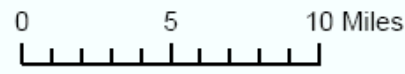


Canoeing

# Major Watersheds of Southwest Michigan

**Major Watersheds**

- Black River
- Galien River
- Kalamazoo River
- Lake Drainage
- Paw Paw River
- St. Joseph River

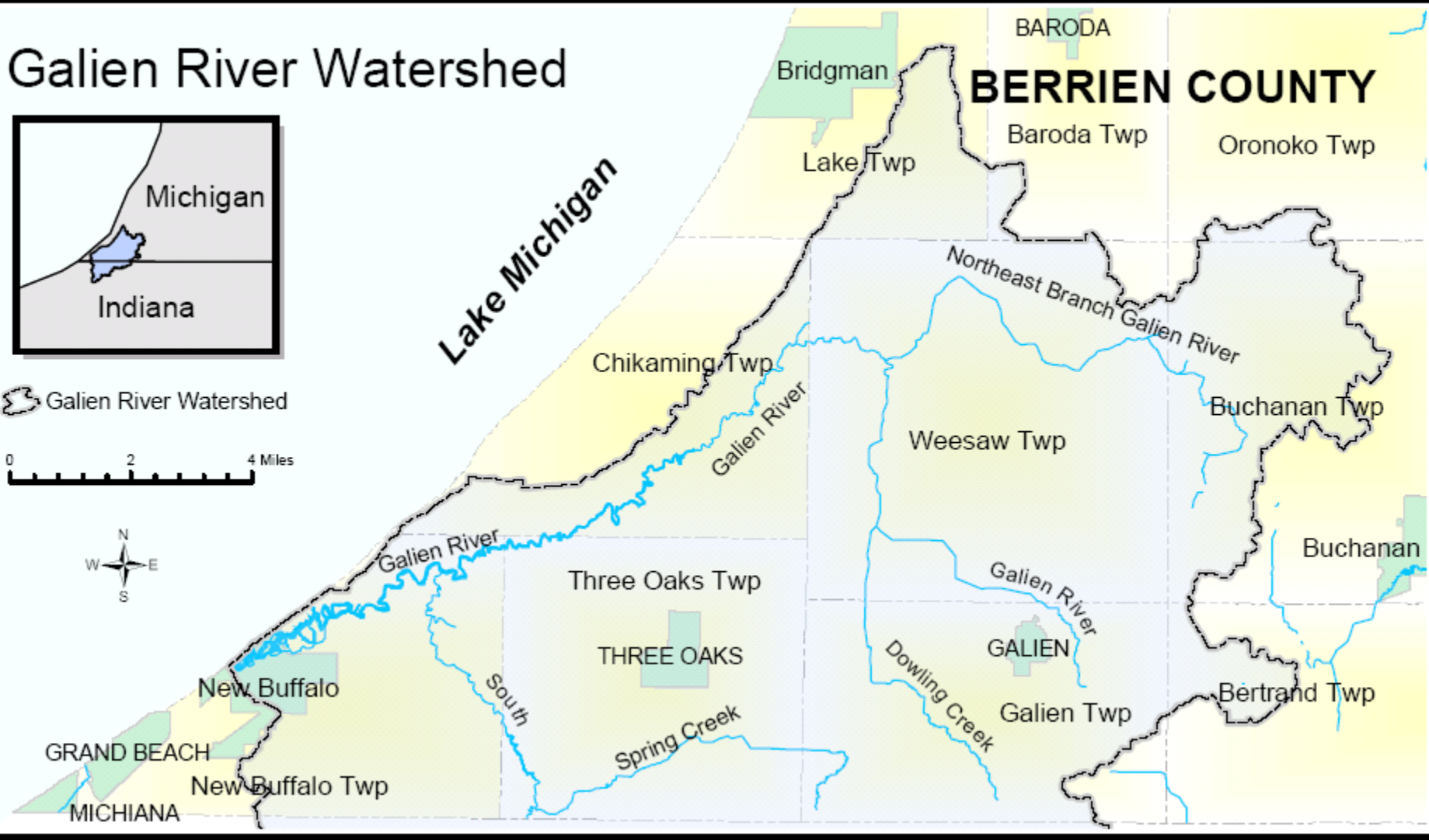


# Galien River Watershed



 Galien River Watershed

0 2 4 Miles



# Water Quality

- “Don’t Know” if Galien water quality is good or not for:
  - Canoeing/Kayaking (35%)
  - Fishing/Fish Habitat (37%)
  - Eating the Fish (45%)
- 42% Galien water quality “Poor” for swimming



# Water Pollutants

- **E.Coli**

- 50% - Don't know
- 20% - Severe Problem
- 17% - Moderate Problem

- **Sediment**

- 43% - Don't know
- 26% - Slight Problem

- **Trash/Debris**

- 25% - Don't know
- 20% - Severe Problem
- 27% - Moderate Problem

- **Phosphorus/Nitrogen**

- 68-73% - Don't know



# Sources of Water Pollutants

- Land Development
- Excessive use of fertilizers
- Improperly Maintained Septic Systems
- Outputs from Marinas
- Littering/Dumping
- Landfills
- Streambank erosion



## Key Findings – The Good News



# Practices

- Most say they:
  - Repair/regularly service their septic system
  - Keep grass clippings on the lawn
  - Recycle auto oil
  - Follow pesticide application instructions
- Many say they don't
  - Protect streambanks with vegetation
  - Plant vegetated buffer strips
  - Use phosphorus free fertilizer
  - Restore wetlands
- Most do not know what a rain garden is

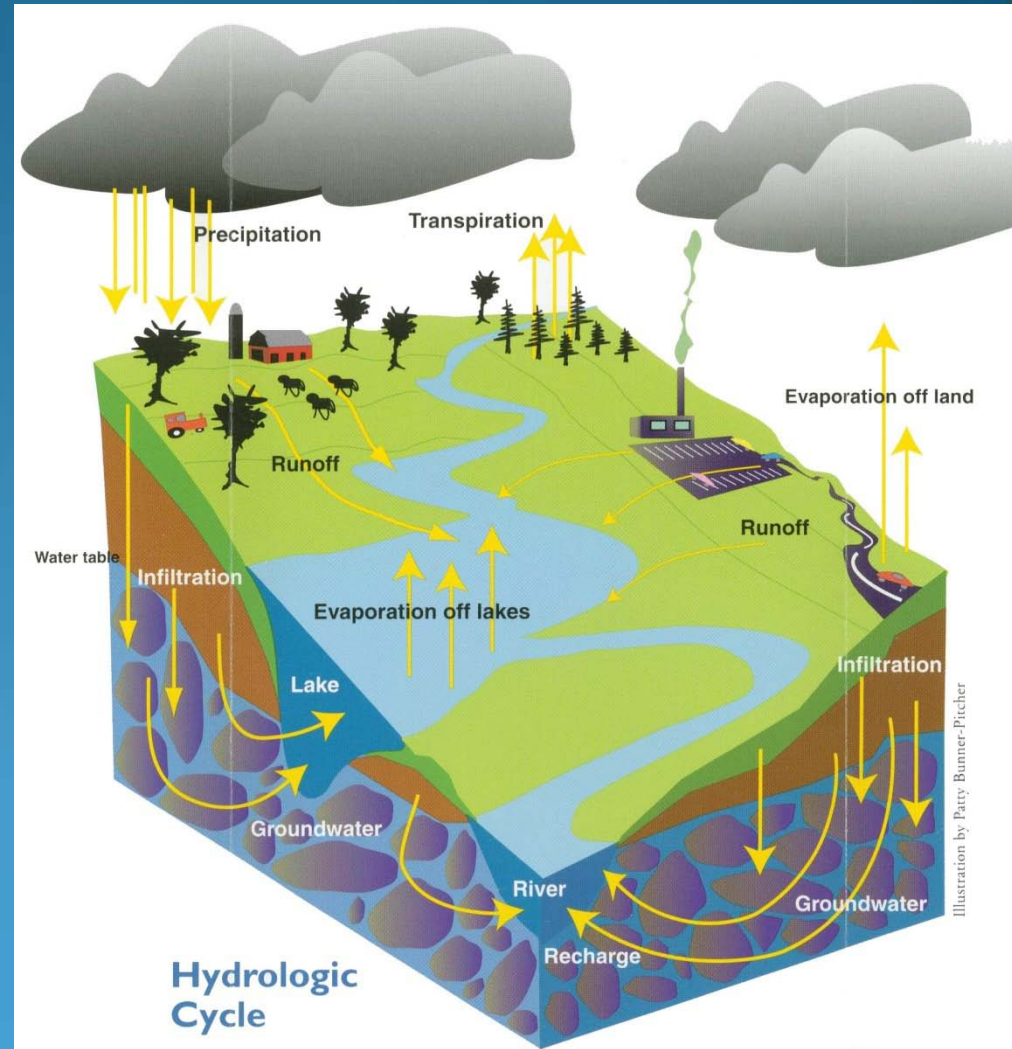


# Two Types of Pollution

☞ Point Source

☞ Polluted Runoff

Over 60% of water pollution comes from polluted runoff!



# Polluted Runoff

We ALL contribute to polluted runoff:

## ☞ Agriculture

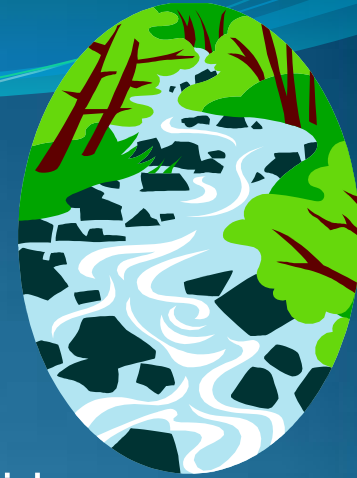
- ☞ runoff from fields - manure, bacteria, fertilizers, pesticides, sediment

## ☞ Households and other Urbanized Areas

- ☞ runoff from “car habitat” (roads, parking lots), lawns, rooftops, golf courses, construction sites, etc – sediment, oils, grease, fertilizers, pesticides, bacteria, pet waste

## ☞ Natural Areas

- ☞ runoff can carry nutrients and E.coli (bacteria) from wildlife



## Top Pollutants:

1. Sediment
2. Nutrients

# Common Pollutants

- **Sediment**

- Improperly managed construction sites
- Croplands
- Eroding stream banks

- **Nutrients**

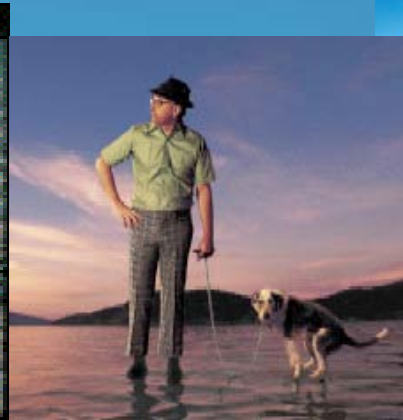
- Excess fertilizers from golf courses, farms, household lawns

- **Bacteria – *E. Coli***

- livestock
- pet waste
- faulty septic systems

- **Oil, grease, and toxic chemicals**

- Cars - parking lots and streets
- Pesticides from farms and lawns



keep it **BLUE**



only rain in the drain

# Galien River Watershed

- Nonpoint Source (NPS) Pollutants of Concern
  - *E. coli*
  - Sediment
  - Nutrients
  - Obstructions and debris
  - Altered hydrology
  - Chemicals
  - Increased temperatures
  - Invasive species
  - Urban storm water runoff

# Water pollution causes

Decreased *fish* and other aquatic life habitat.



Increased chance of **contaminated drinking water supplies.**



Increased *algae blooms* causing fish kills.

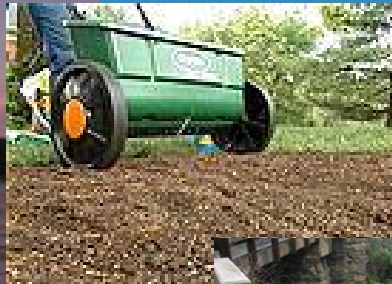
Increased beach closures.





# Agricultural Sources

# Water pollution comes from **EVERYDAY** activities of households.

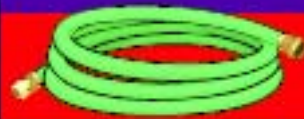




# Conservative Estimates of U.S. Polluters

Everyday People doing Everyday Things

**Hosers**



**15 million**

**Pesticide Sprayers**

**43 million**



**Bad Mechanics**

**3 million**



**Septic Slackers**

**15 million**



**Chronic Car Washers**

**27 million**



**Bad Dog Walkers**

**16 million**



**Over-Fertilizers**

**38 million**



Source: Center for Watershed Protection

keep it **BLUE**



Figure B  
Cluster Design

## Local Government

Update master plans and ordinances

Set a good example – Be a Good Steward!



## Developers

Utilize Low Impact Development

Preserve natural features (wetlands)

**Everyone Needs to Do their Part**

## Agricultural Operators

Install agricultural best management practices (BMPs)



## Everyone

Participate in community activities



## Landowners

Use native plants and provide backyard habitat

Conservation Easement with Land Conservancy



# Agricultural Lands



## Best Management Practices

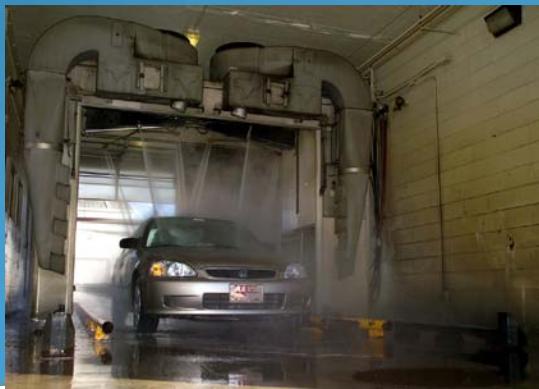
- Filter Strips
- Wetland Restoration
- Riparian Forested Buffers
- No Till /Conservation Tillage
- Wind Breaks

# Wetlands...

- Reduce soil erosion on lake and stream banks
- Filter water (sediment, nutrients, etc)
- Absorb water (reduce flooding)
- Recharge groundwater (provide drinking water)
- Provide habitat (fish, birds, amphibians, etc)
- Provide recreation opportunities (hunting, fishing, bird watching, etc)

# KEEP IT BLUE

1. Do Not Dump anything down the drain
2. Save Water
3. Use fertilizers sparingly (Zero In The Middle - Phosphorus Free!)
4. Clean up after your pet
5. Clean out your septic system regularly
6. Take your car to a carwash



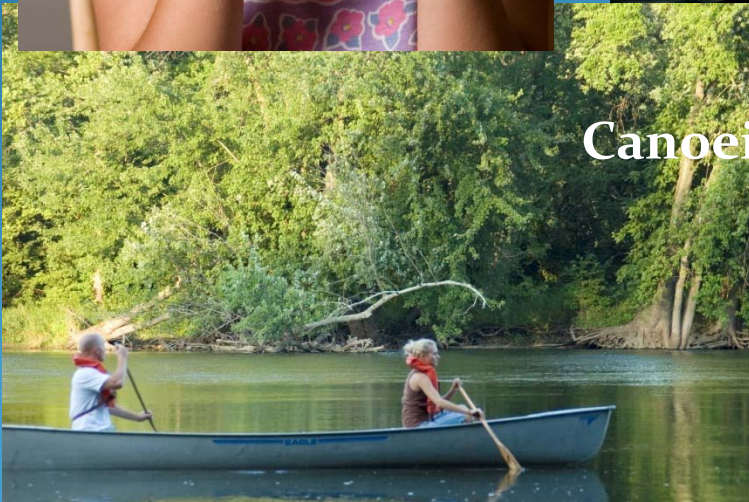
# Do your part so we can enjoy....



Drinking water



Swimming



Canoeing



Playing in the water

keep it **BLUE**



only rain in the drain

For more information visit:

[www.swmpc.org/water.asp](http://www.swmpc.org/water.asp)