

(What Can I Get from these Talks?)

- What is a TMDL?
- What is Involved in the TMDL process?
- How could this impact me?
- Collaboration in Action
- What is a Watershed Assessment & How are they done?

TMDL's

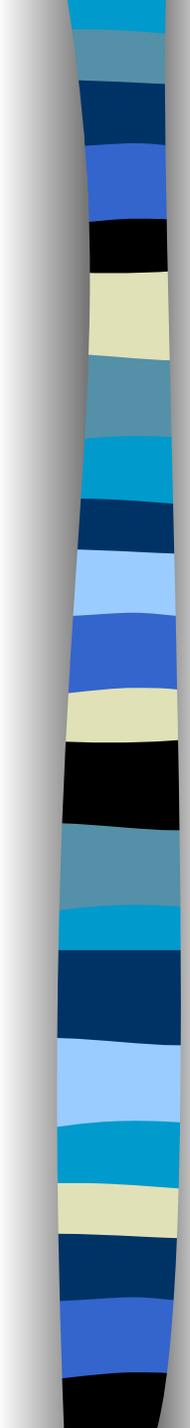
Explanation & Overview



Dept. Of Environmental Quality

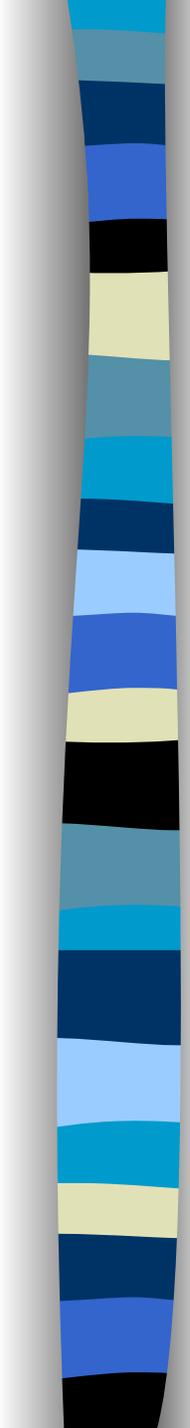
Division of Water Quality

Mike Allred - Watershed Coordinator



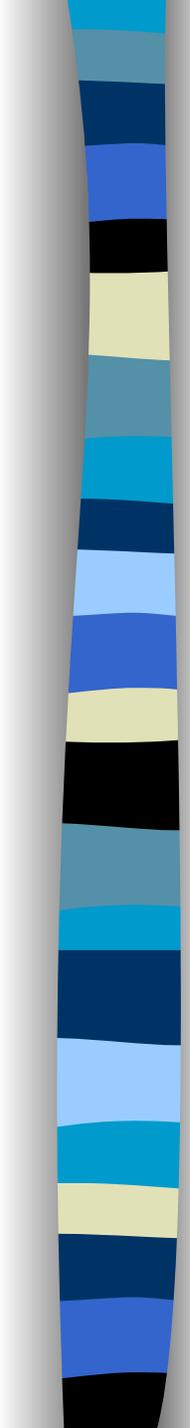
Outline:

- Water Quality Regulatory Overview
- TMDL Process
- TMDL Case Study
- TMDL Implementation Impacts to Cities, Towns and Counties



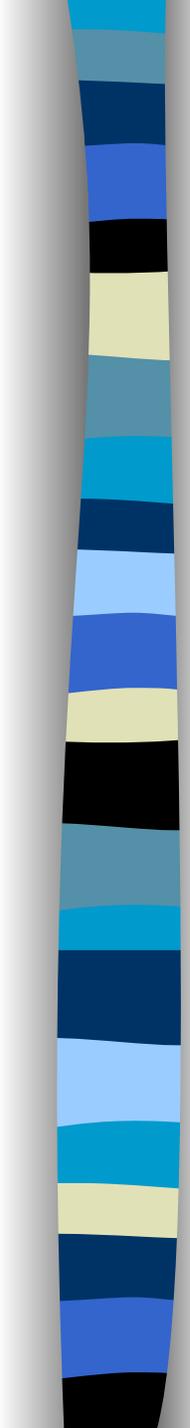
Clean Water Act (1972)

- Restore and Maintain the Chemical, Physical, and Biological Integrity of the Nation's Waters
- Focus was on Point Source Discharges
- Fishable Swimmable Waters by 1983
- Administered by EPA



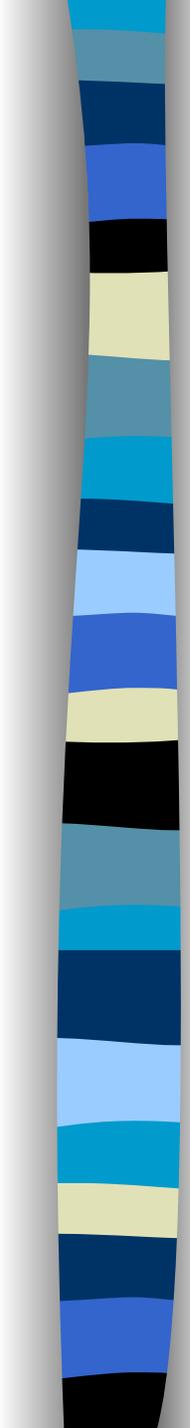
Clean Water Act cont'd.

- Amended in 1987 to add Nonpoint Source Component
 - **Nonpoint Source** - runoff from agriculture, forestry, mining, urban stormwater etc.



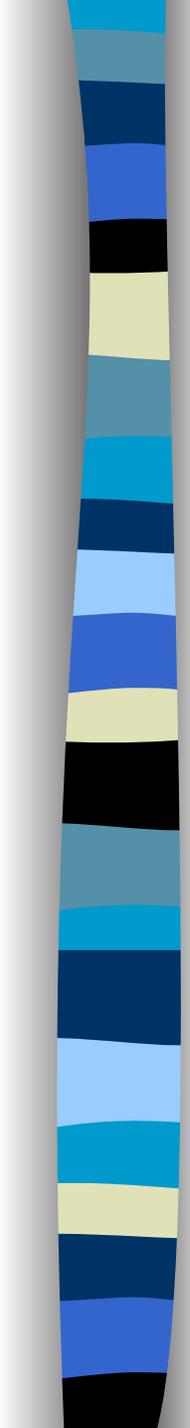
Clean Water Act cont'd

- Delegated to the States for implementation at the state level
- Utah Environmental Quality Code
 - Chapter 5 Water Quality Act



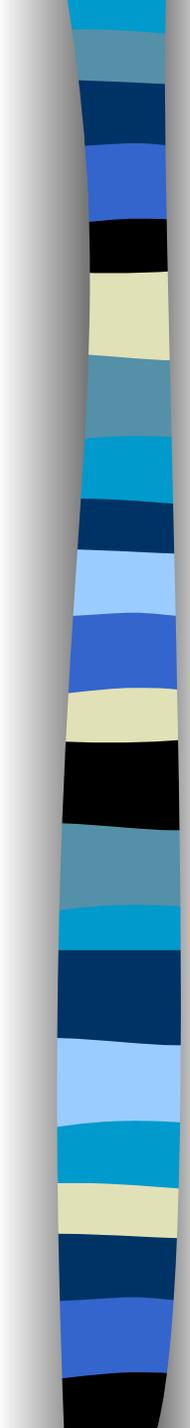
Utah Water Quality Act

- Chapter 5 of Utah's Environmental Quality Code
 - Sets Up Water Quality Board
 - Limits Discharges of Pollutants to Waters of the State
 - Authorizes Setting up Beneficial Uses of Waters (Classification of Waters)
 - Authorizes Establishing Water Quality Standards to Protect Beneficial Uses



Water Quality Standards

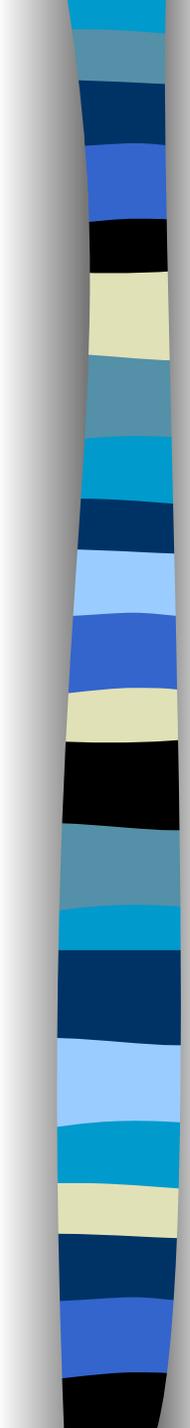
- How do you know what the maximum amount of pollutant a waterbody can carry and still maintain its beneficial uses? **(Water Quality Standard)**
- TMDL Target or Endpoint



Water Quality Classifications (to Protect Beneficial Uses)

■ Classifications in Utah

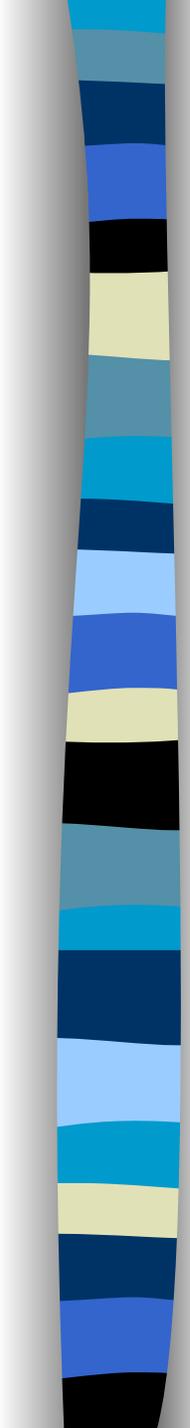
- Class 1 Source of Drinking Water
- Class 2 Recreation (contact, non-contact)
- Class 3 Aquatic Wildlife
- Class 4 Agricultural
- Class 5 Great Salt Lake



Beneficial Use Designations (Classifications)

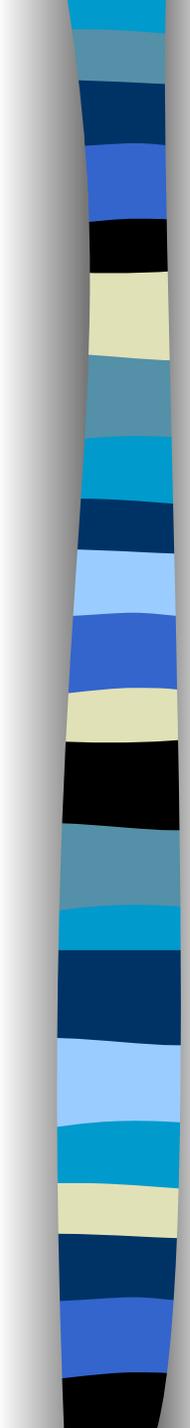
- ◆ Class 1C - Drinking Water
- ◆ Class 2A, 2B - Recreation (e.g. swimming, boating etc.
- ◆ Class 3A, 3B, 3C, 3D - Wildlife Uses
- ◆ Class 4 - Agricultural Uses

- ◆ **Example:** Mill Creek - 1C, 2B, 3A and 4



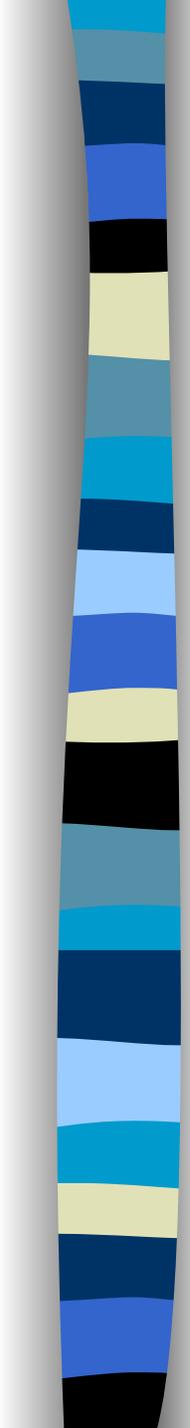
Water Quality Standards

- Example - Numeric Criteria for Lead
 - Drinking Water (Class 1) .05 mg/l
 - Agriculture (Class 4) .1 mg/l
 - Aquatic Wildlife (Class 3)
 - 4 day average .003 mg/l
 - 1 hour average .082 mg/l



Impaired Waters

- Stream, River, Lake or Reservoir that does not meeting water quality standards
- 303(d) List - All waterbodies that are impaired
- Utah's 303(d) list (August 2002) on DWQ Website: www.deq.state.ut.us
- Impaired waterbodies require a TMDL



TMDL Points Of Interest

- Source of Litigation in 36 States
- Utah is not currently under litigation for TMDL's
- A TMDL will be completed in Utah for:
 - 43 Lakes & Reservoirs
 - 85 Stream & River Segments
(Some in every major basin in Utah)
 - Currently completing ~ 12 per/year
 - Target to complete all by 2010

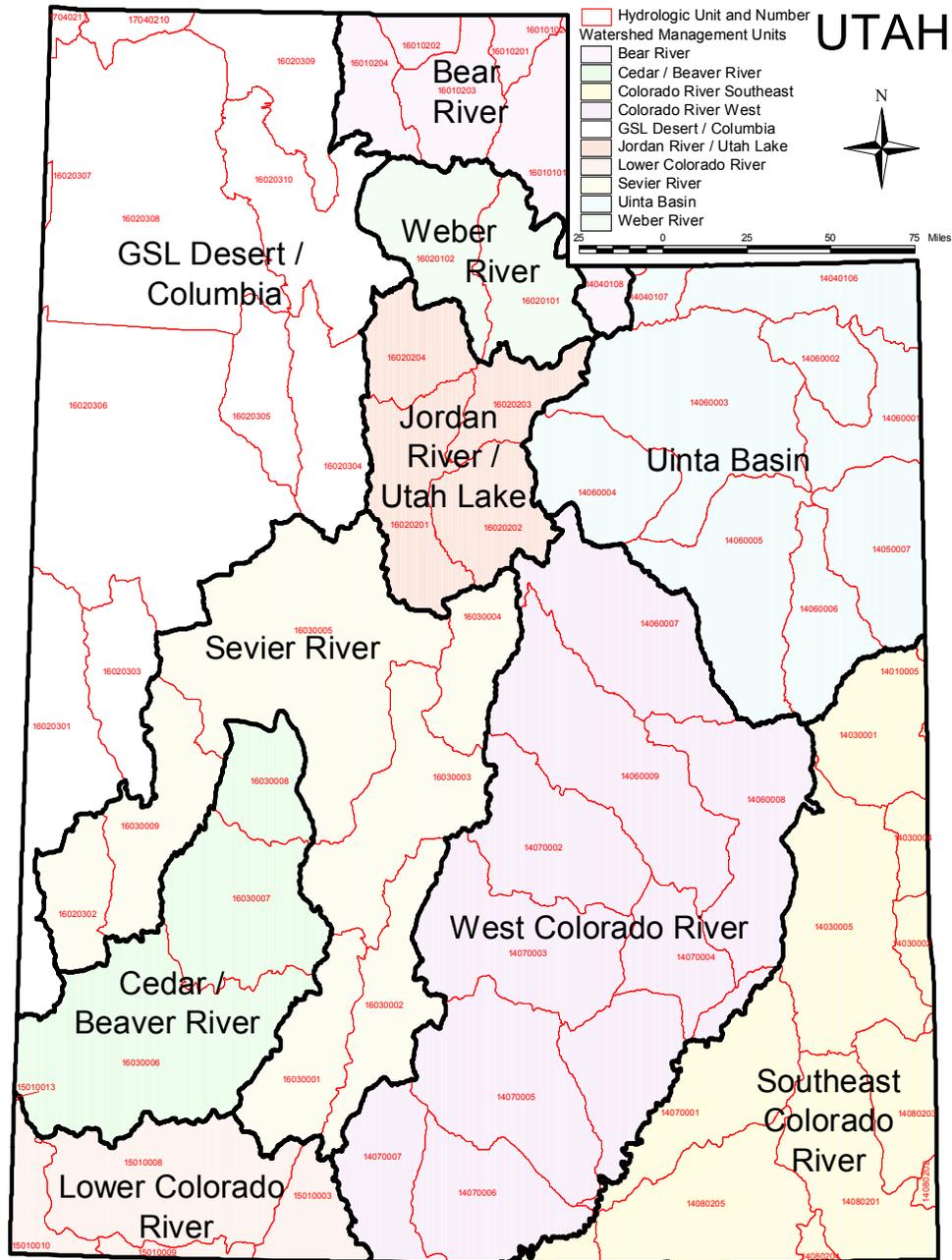
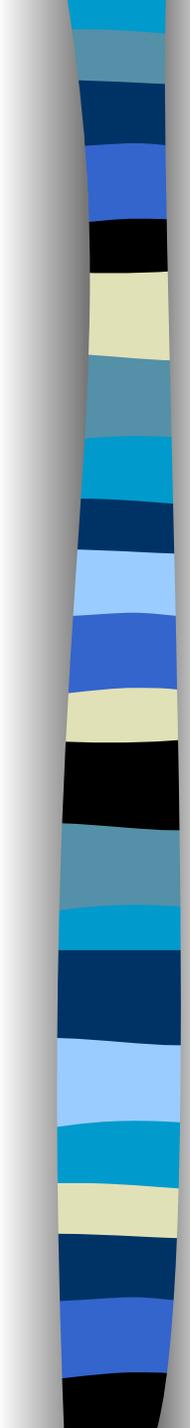
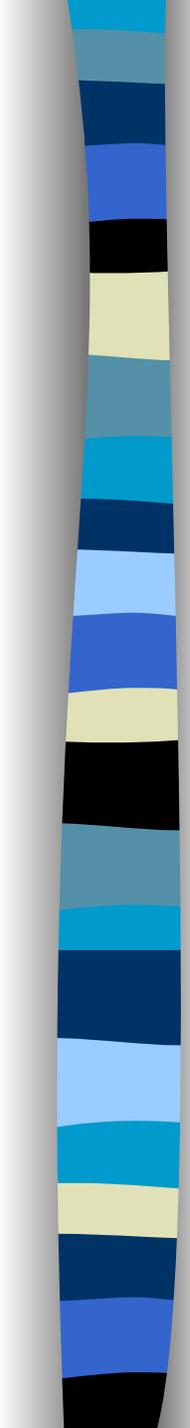


Figure 1. Utah's watershed management units and hydrological units (HUCs).

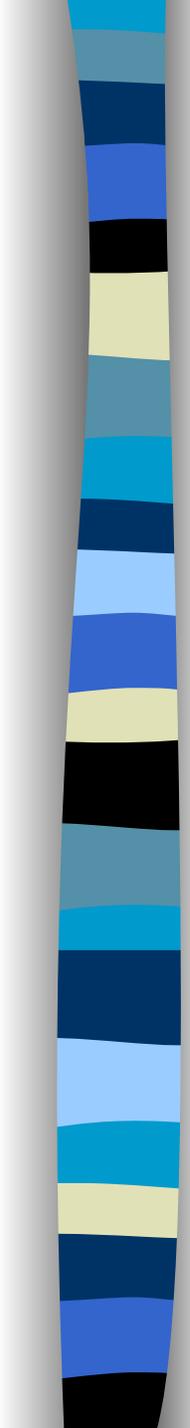


TMDL's??

- Terrific Mechanism to Develop Litigation
- Too Many Darn Lawyers
- Too Much Dadburn Legislation
- Totalitarian Mandates for Daily Living?
- Total Maximum Daily Loads

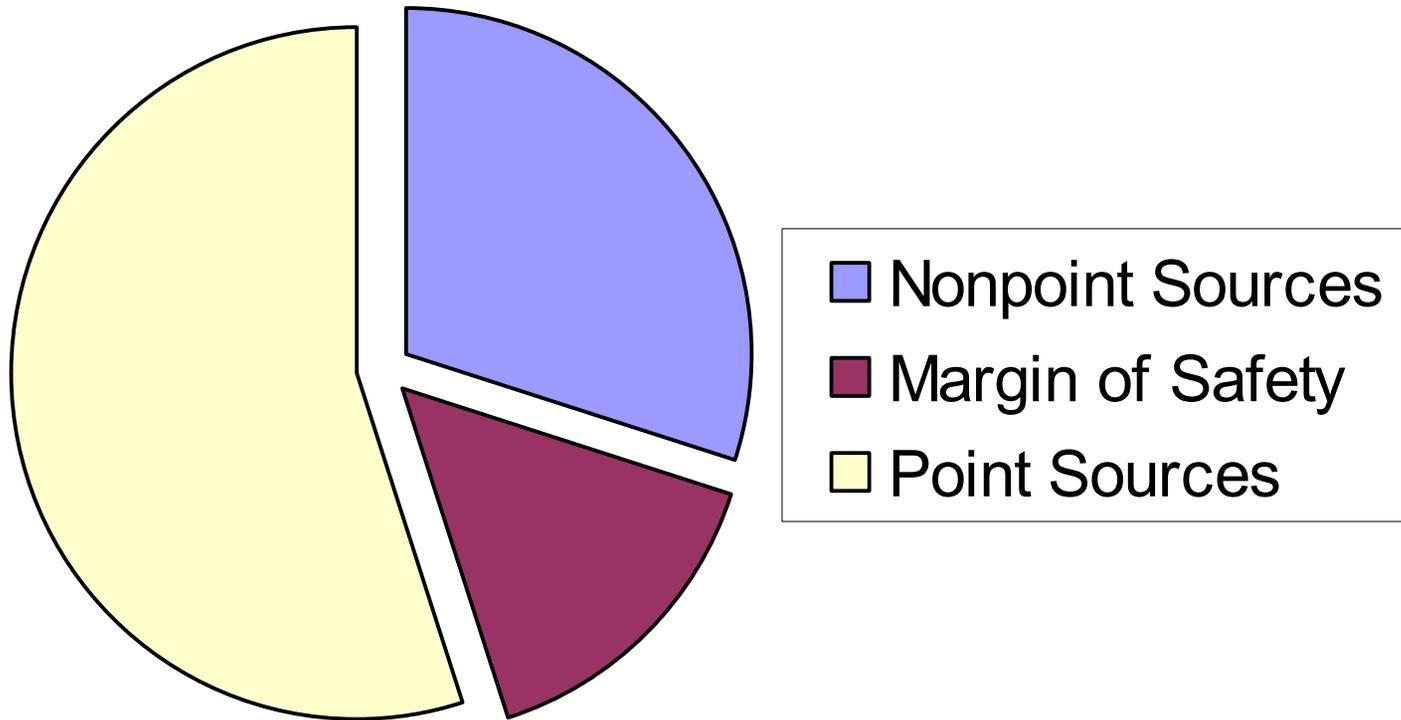


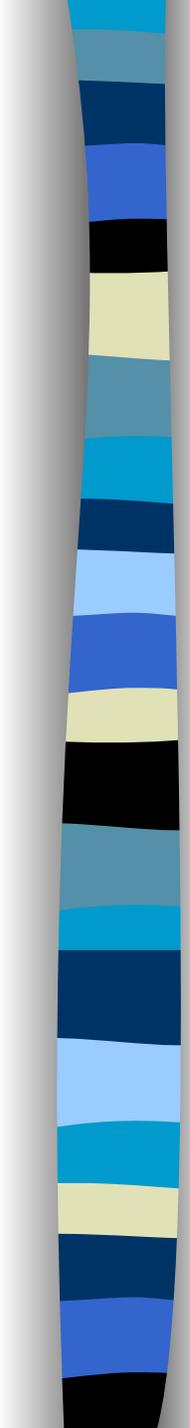
TMDL's are written plans and analysis established to ensure that the waterbody will attain and maintain water quality standards.


$$\text{TMDL} = \text{LA's} + \text{WLA's} + \text{MOS}$$

- LA - Load Allocations for Non-Point Sources (includes natural background)
- WLA - Waste Load Allocations for Point Sources
- MOS - margin of safety

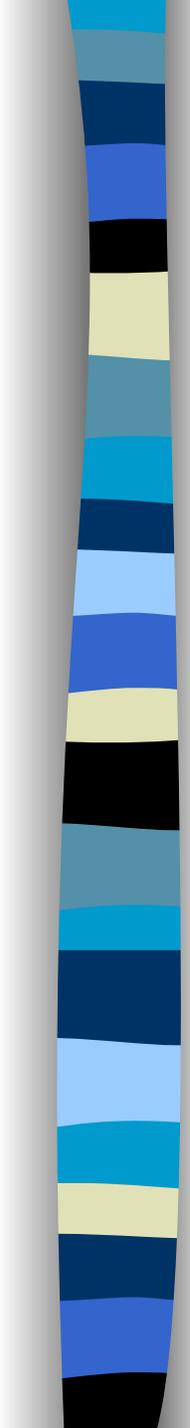
Hypothetical TMDL Allocation





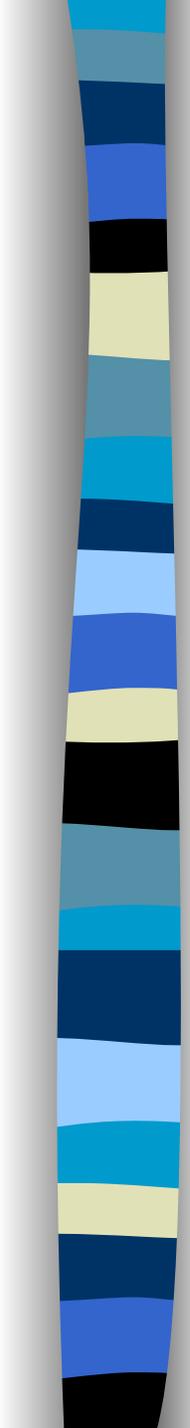
TMDL Process

- Identify sources and causes of pollutants
- Identify the water quality goal (endpoint)
- Establish the total amount of pollutant that can be allowed
- Allocate Pollutant Loads to Sources
- Identify and implement measures to achieve and maintain water quality standards
- Monitor to assure that goals are met; modify the plan if needed



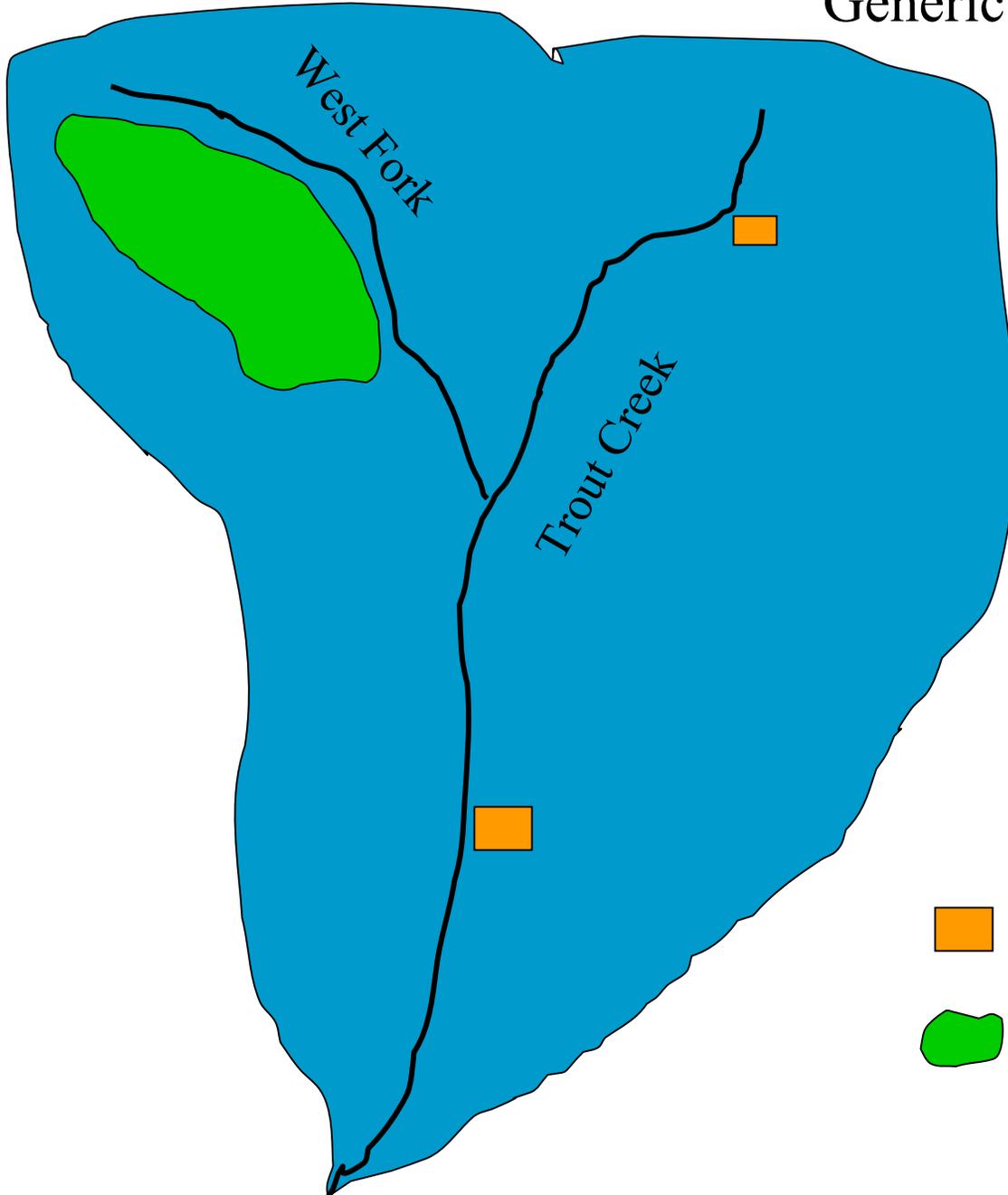
How Could I Be Affected?

- May have impact on land use planning
- Could trigger storm-water requirements for affected municipalities
- Could impact development plans
- Could modify riparian area management



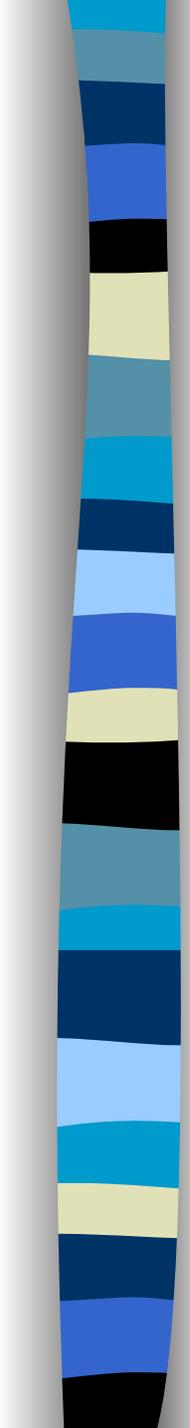
An Example: The Generic Watershed

Generic Watershed



-  Point Source
-  Nonpoint Source





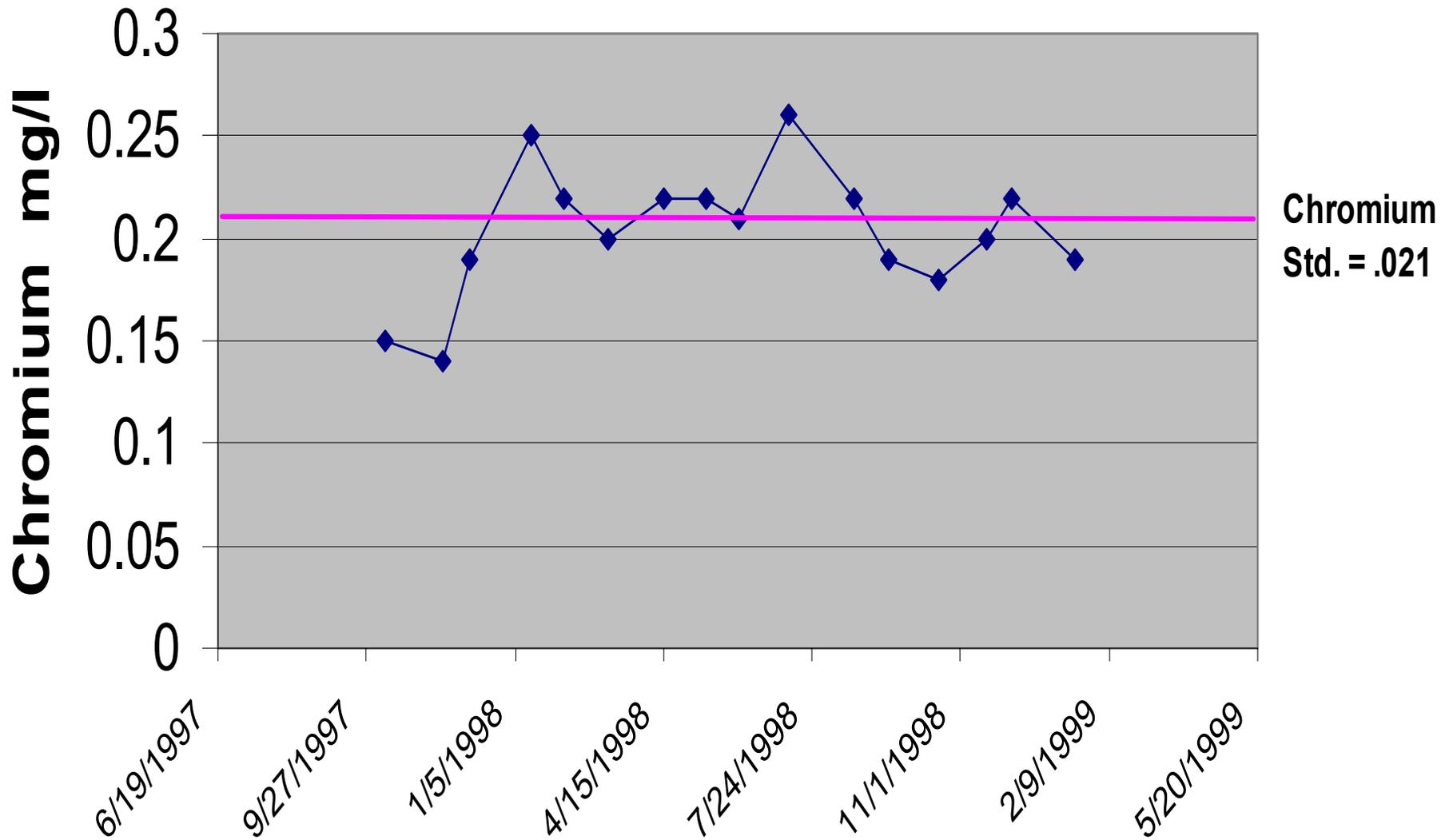
Trout Creek - Class 3A (cold water fishery)

Numeric Criteria for Aquatic Wildlife

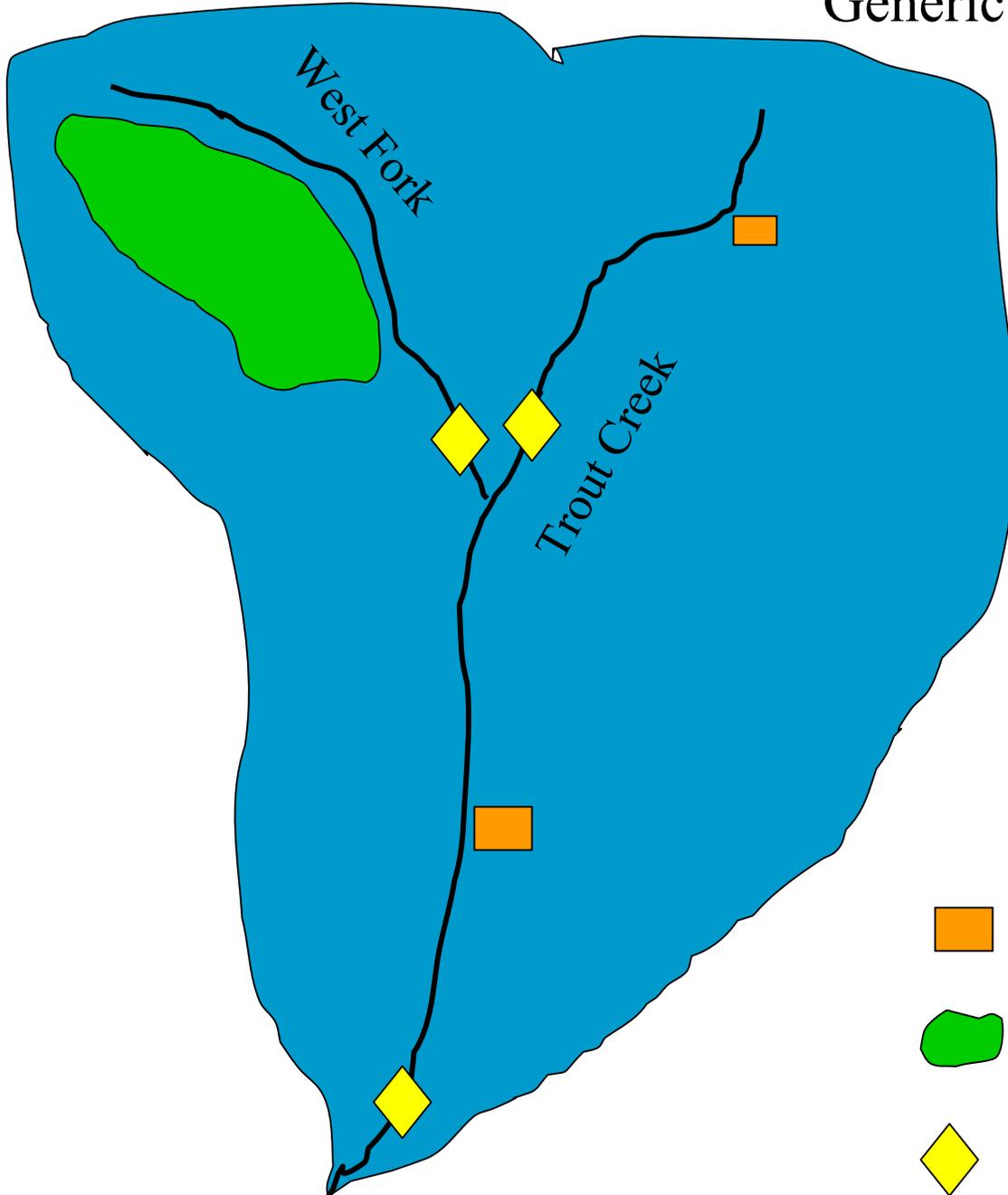
3A Cold Water Fishery

Diss. Oxygen	6.5 mg/l
Max. Temp	20 degrees C
Metals in milligrams per liter (ppm)	
Aluminum	.087 mg/l
Arsenic	0.19 mg/l
Cadmium	.001 mg/l
Chromium	0.21 mg/l
Copper	.012 mg/l
Lead	0.003 mg/l

Trout Creek

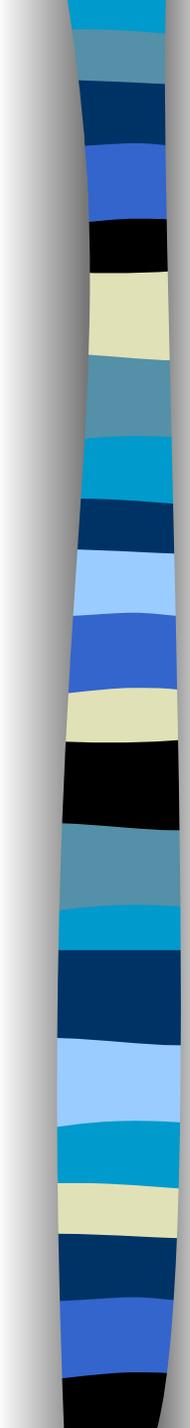


Generic Watershed



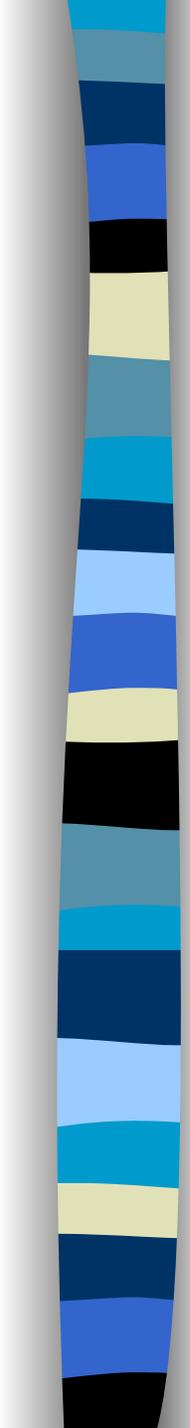
-  Point Source
-  Nonpoint Source
-  Sample Point





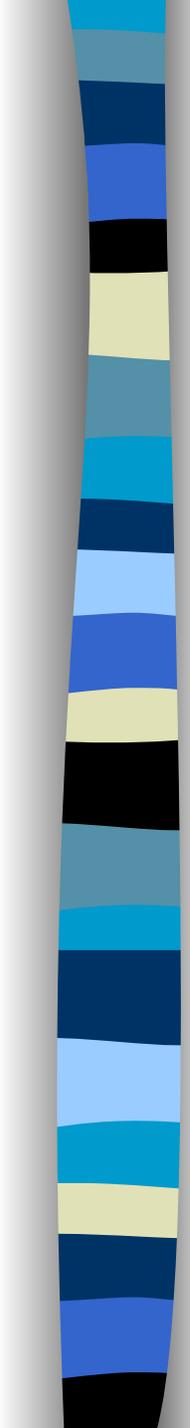
Inventory of Sources - Trout Creek

- West Fork - Chromium = .06 mg/l
- Trout Creek above West Fk. = .18 mg/l
- Trout Creek at outflow = .24 mg/l



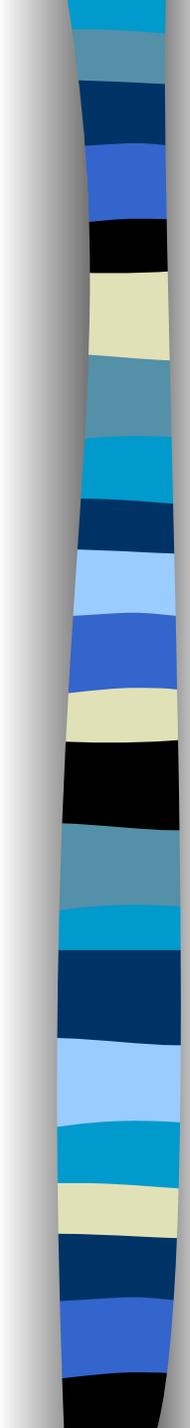
TMDL Outcomes for Trout Ck.

- Chromium needs to be reduced to meet Water Quality Standards of .021 mg/l
- Reductions from Point Source and Non Point Sources needed
- TMDL Implementation will impact Management Practices in the Watershed



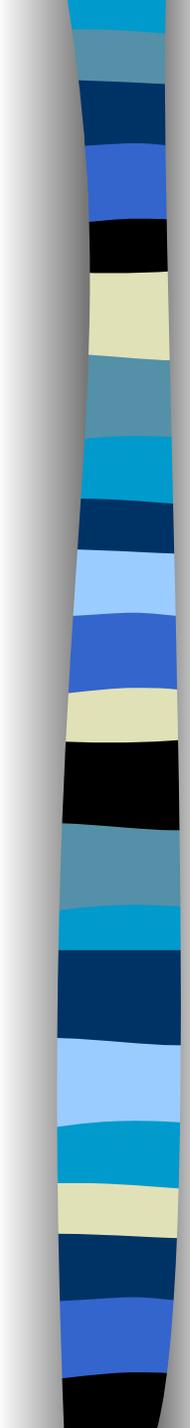
Potential TMDL Impacts to Cities, Towns, Counties

- Point Source Facilities (Sewer Systems)
- Stormwater Programs
- Planning & Development
 - Septic System Density
 - Lot Sizes
 - Protection of Sensitive Zones (Stream Areas)



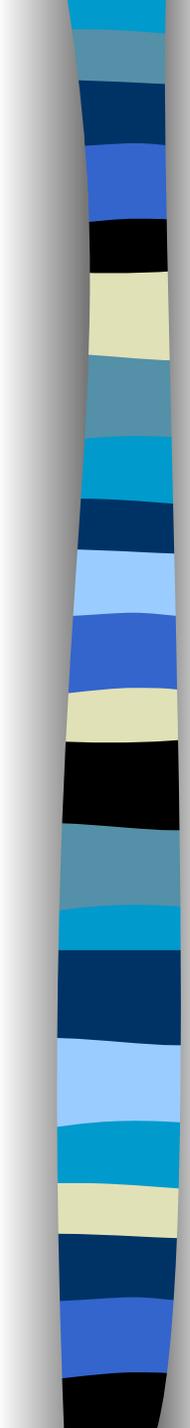
Participation in TMDL Process

- Involvement in Local Watershed Committees
- Understanding legal & regulatory constraints
- Comment and feedback on draft TMDL documents
- Planning ahead for changes needed to protect or restore water quality

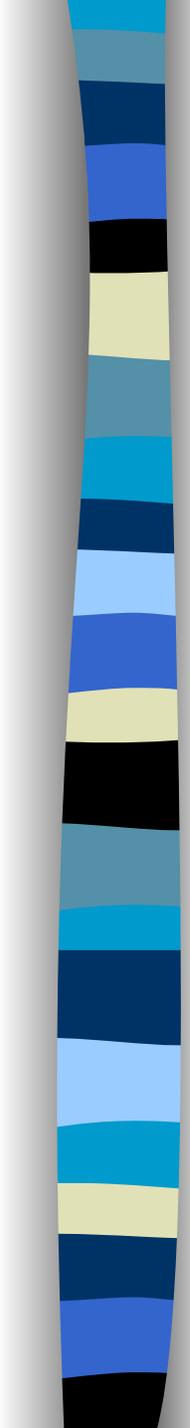


Local Watershed Groups

- Division of Water Quality
Web Page
- www.deq.state.ut.us

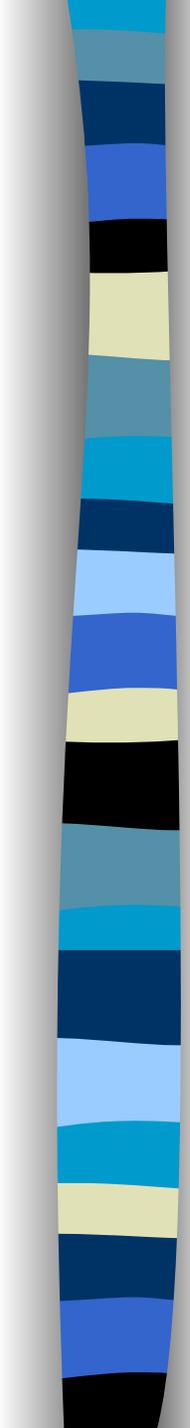


Local Involvement
Is the Key to
Successful Water Quality
Planning and
TMDL Development.



Take Home Points

- TMDL's will likely affect your watershed
- Nutrient focus is increasing nationally
- Utah's rapid growth & development exacerbates water quality problems
- Involvement in local watershed groups and TMDL's is recommended



TMDL