Defining the Scope of the WPP

Texas Watershed Planning Short Course
June 3, 2008
Bandera, TX

Session Objectives

- This session will discuss
  - Defining geographic and temporal scope
  - Identifying issues of concern,
  - Developing preliminary goals, and
  - Selecting indicators of environmental conditions
- As outlined in Chapter 4 of the Handbook

Scope

- geographic area to be addressed
- number of issues of concern
- types and breadth of the goals to attain

- temporal scope of implementation
  - typically written for a time span of 5-10 years
    → adaptive management

Too Broad or Narrow

- too broad
  - Difficult to “keep it all together”
  - Not able to efficiently/effectively use financial and human resources in process
  - Hamper ability to conduct detailed analyses
  - Diminish likelihood of involvement by key stakeholders
  - Minimize probability of successful plan implementation

- too narrow
  - Preclude the opportunity to address watershed stressors in a rational, efficient, and economical manner

Geographic Focus

Key Concepts of WPPs

- Specific geographic watershed focus large enough so that its implementation holistically addresses all of the sources and causes of impairments and threats to water resources

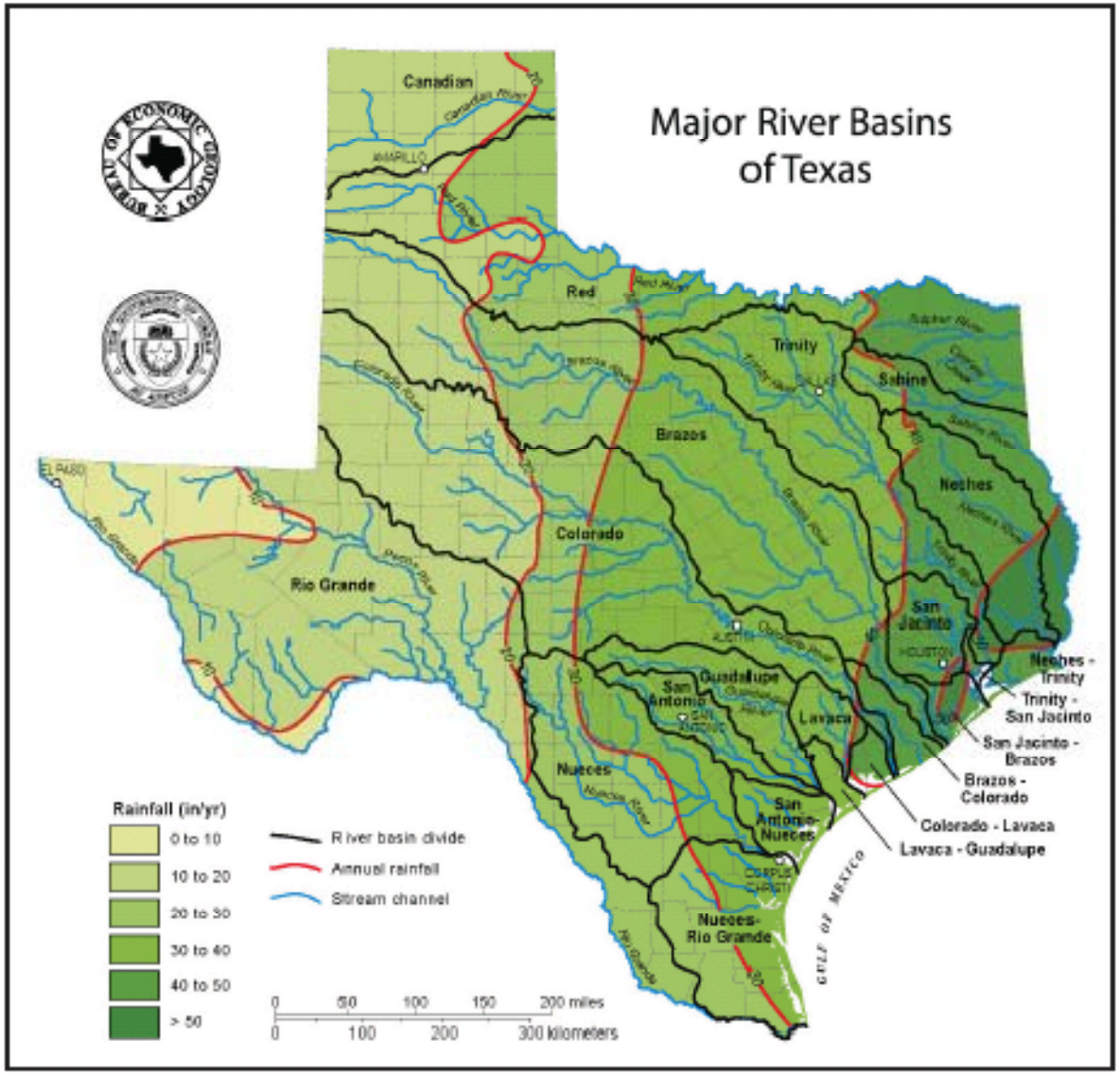

Figure 2. River Basin Map of Texas (1996). Image courtesy of the Bureau of Economic Geology, The University of Texas at Austin.

12-digit HUC

Watershed Boundary Definition
A region, the largest drainage basin, contains the drainage area of a major river or the combined drainage areas of several rivers.
Subregions divide regions and include the area drained by a river system.
Basins divide or may be equivalent to subregions.
Subbasins divide basins and represent part or all of a surface-drainage basin, a combination of drainage basins, or a distinct hydrologic feature.
Watersheds divide subbasins and usually range in size from 40,000 to 250,000 acres. Subwatersheds divide or may be equivalent to watersheds and usually range in size from 10,000 to 40,000 acres.
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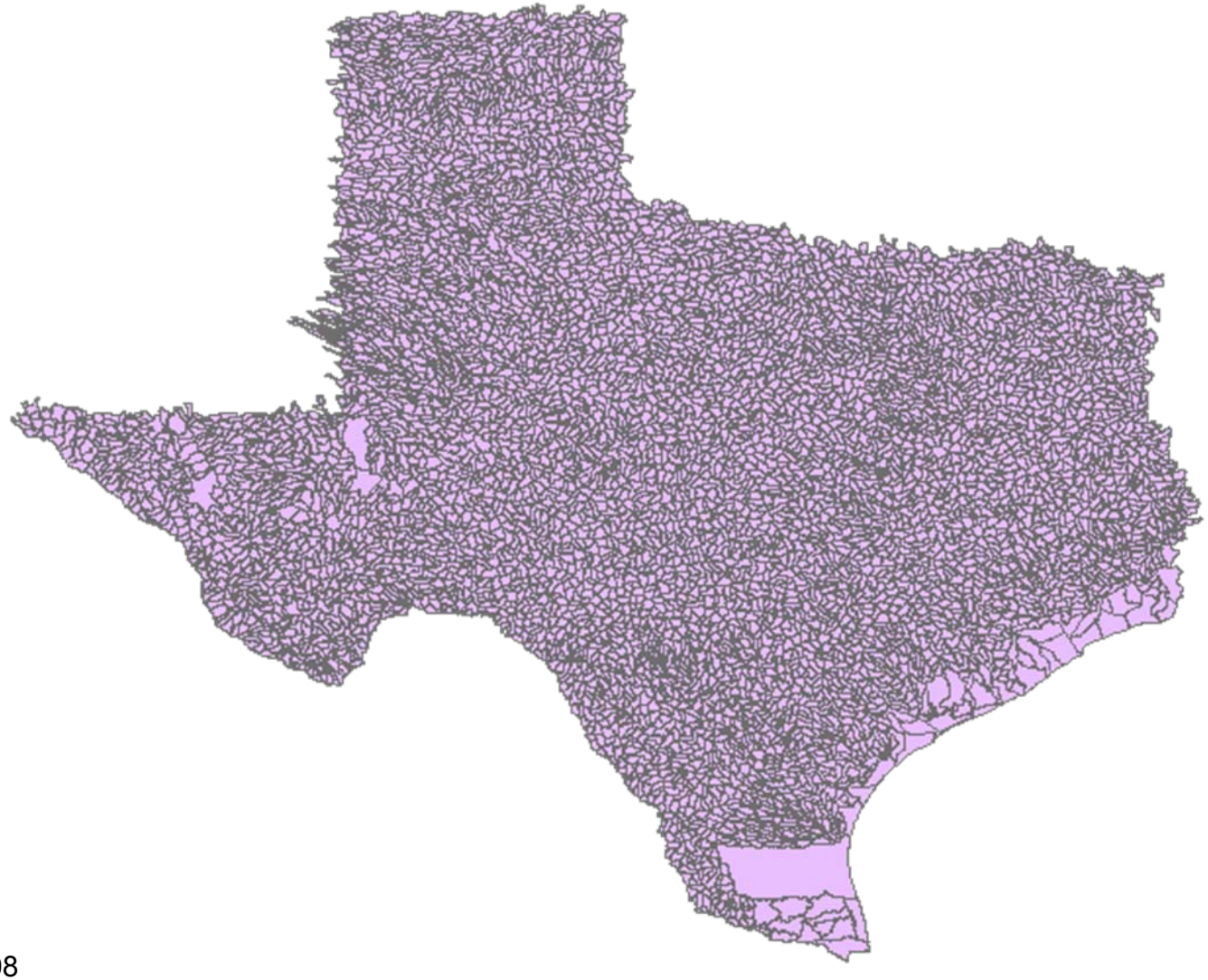
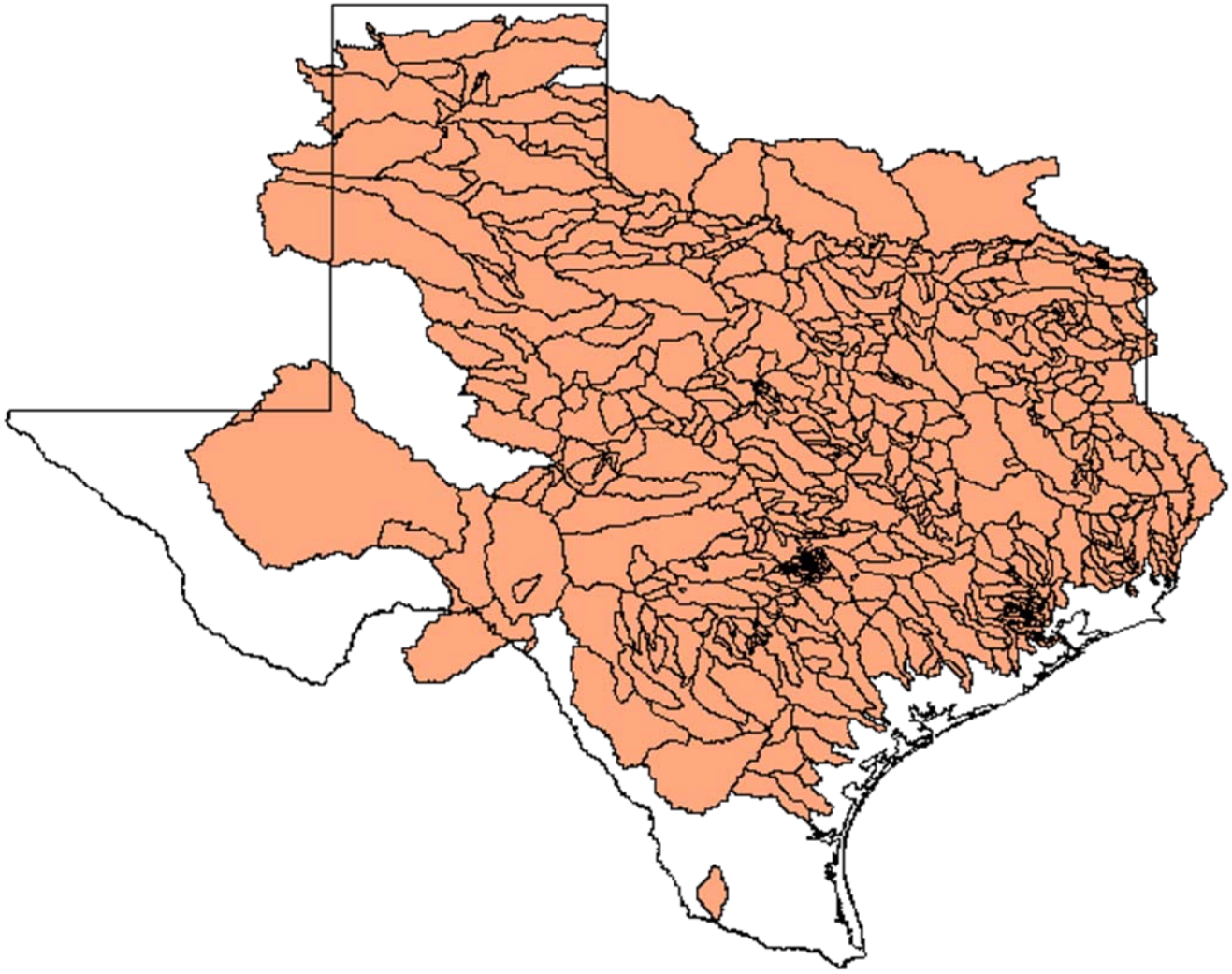
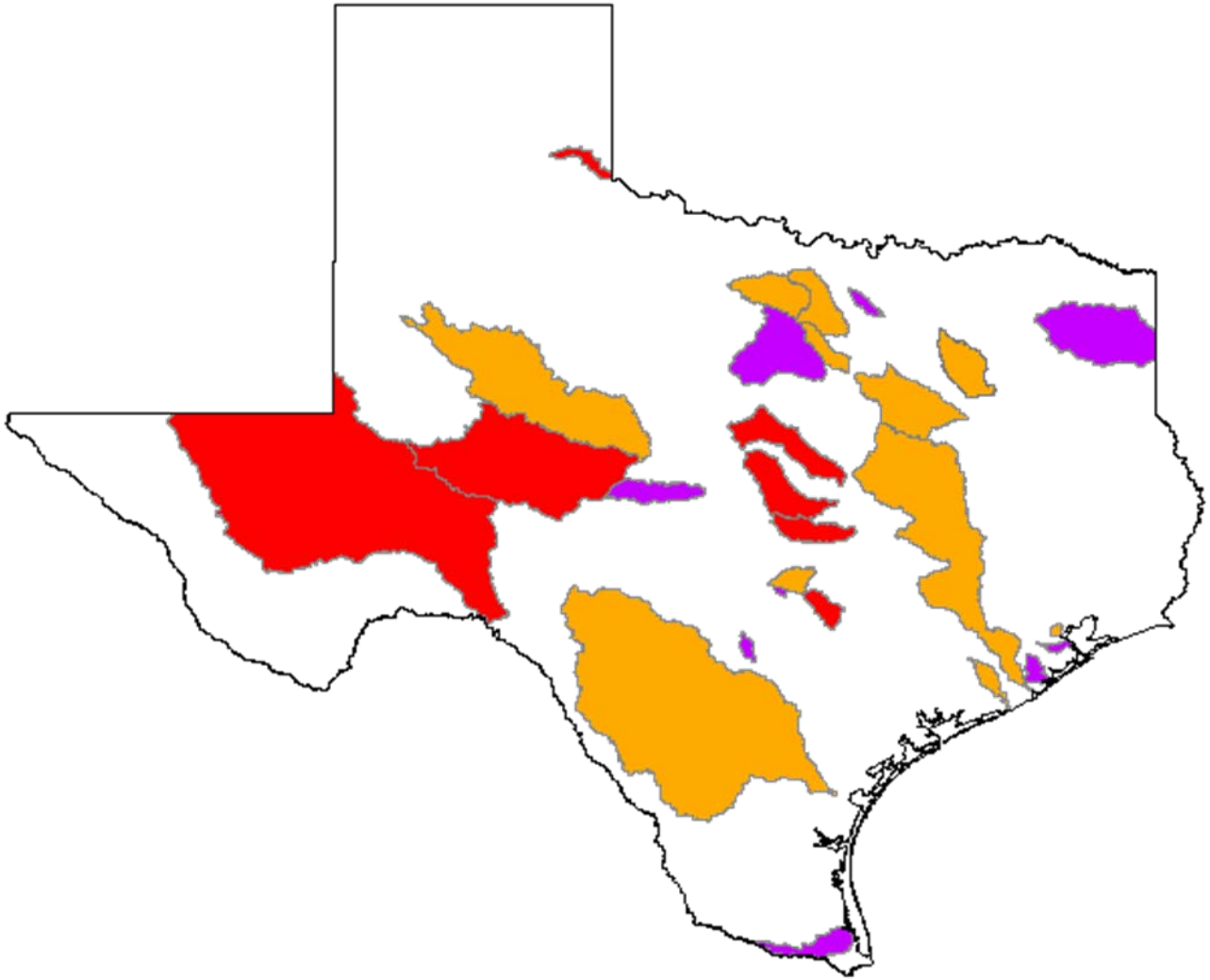
HUC12s in Texas



Segments



Texas WPPs



Acres in TX WPP Watersheds

Cypress Creek	24,299
Armand Bayou	35,496
Dickinson Bayou	63,571
USAR	85,431
Hickory Creek	110,635
Bastrop Bayou	148,317
Buck Creek	192,581
Plum Creek	254,080

Arroyo Colorado	451,840
Granger Lake	466,587
Brady Creek	513,950
Cedar Creek Reservoir	646,380
Lampasas River	839,800
Caddo Lake	1,791,871
Pecos River	12,434,468

Plum Creek HUC12s

- So, the appropriate size of watershed (geographic focus) for a Texas WPP is...

Issues of Concern

2 step process

1. Project development/funding – grant workplans
   - Preliminary analysis to define scope
2. Beginning to pull more stakeholders into the process
   - Query them about issues and goals

- What are the known or perceived impairments and problems in the watershed?
- What information is already available, and what analyses have been performed to support development of the WPP?
- Are there any historical or ongoing management efforts aimed at controlling the problem pollutants or stressors?
- Are there any threats to future conditions, such as accelerated development patterns?

- Get stakeholders out into the watershed
  - Do a watershed tour (or a stream walk or a kayak/canoe float trip) early in the process
- Modify preconceived notions
  - About other stakeholders
  - About water quality issues
- Connectivity to waterbody
  - Where do stakeholders live, work or play?
  - Actions affect water resources

- It's not simply about water quality and removing the waterbody from the 303(d) list
  - What brings a particular stakeholder to the table?
  - Illegal dumping at stream sites
  - Ecosystem issues (instream flows, habitat, brush)

- Role of watershed coordinators to understand links between pollutants/stressors and watershed impacts and translate that for stakeholders

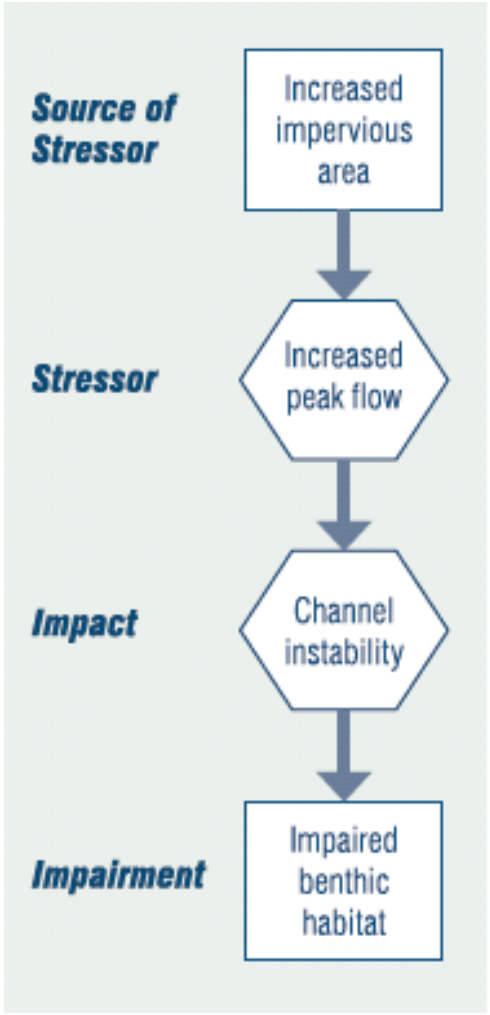


Figure 4-1. Simplified Conceptual Model

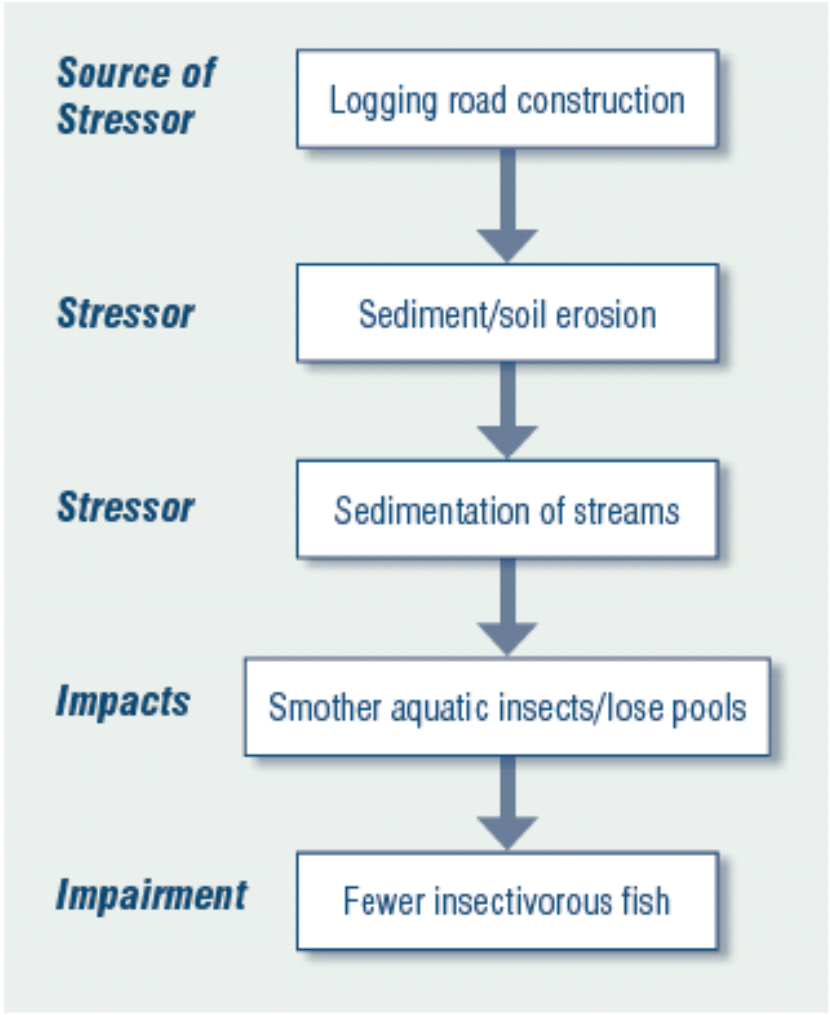


Figure 4-2. Simple Conceptual Model Involving Logging Road Construction Effects on Stream Aquatic Life (adapted from USEPA 1998)

Goals

Vision and Preliminary Goals

Example Preliminary Goals

- Meet water quality standards for dissolved oxygen.
- Restore aquatic habitat to meet designated uses for fishing.
- Protect drinking water reservoir from excessive eutrophication.
- Manage future growth.
- Restore wetlands to maintain a healthy wildlife community.
- Protect open space.

- May be broad, with further refinement as watershed is characterized
- Establishes ownership of WPP effort and foundation for behavior change
- Incorporate TMDL goals

Hierarchal, Step-wise Process

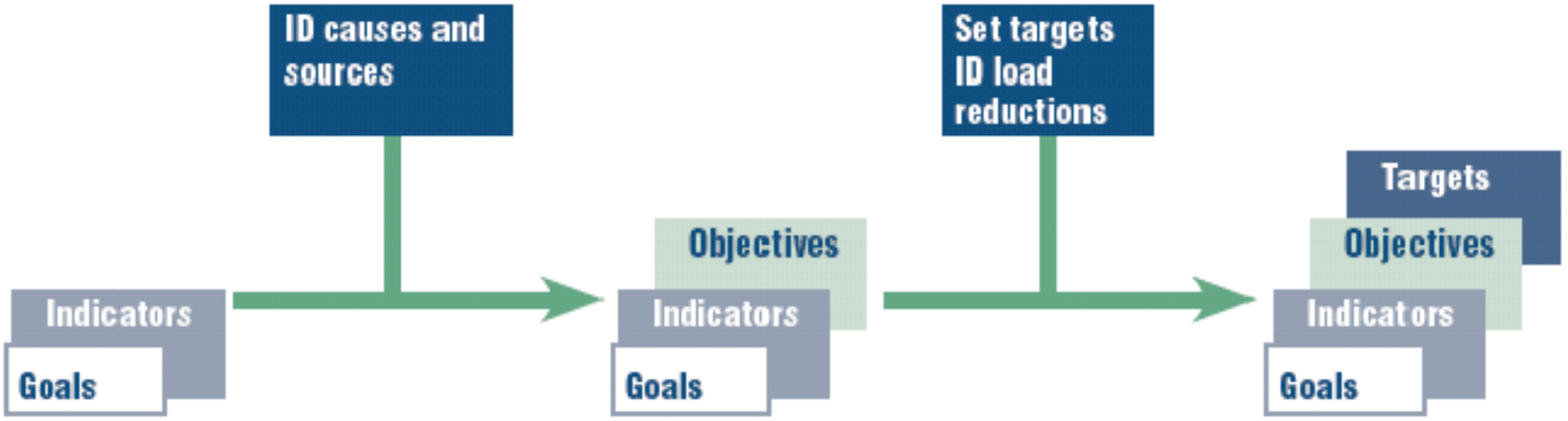


Figure 4-4. Evolution of Goals Throughout the Watershed Planning Process

Indicators

Indicators

- Measure the current health (status and trends) of the watershed
- Measure progress toward meeting goals

- A problem might be indicated but this does not tell what the problem is, where it is, or what caused it

Table 4-2. Use of Indicators Throughout the Watershed Planning and Implementation Process

Planning Step	How Indicators Are Used
Assess Current Conditions	Indicators are used to measure current environmental conditions, e.g., water quality, habitat, aquatic resources, land use patterns
Develop Goals	Indicators are used to determine when the goal will be achieved, e.g., reducing nutrient loads to meet water quality standards
Develop Pollution Load Reduction Targets	Indicators are used to measure the targets for load reductions, e.g., phosphorus concentration
Select Management Strategies	Indicators are used to track the implementation of the management measures, e.g., number of management practices installed
Develop Monitoring Program	The monitoring program measures the indicators that have been developed as part of the management strategies and information/education program
Implement Watershed Plan	Indicators are used to measure the implementation of the watershed plan, tracking dollars spent, resources expended, management practices implemented, and improvements in water quality

Combination and Quantitative

- Environmental
  - Temperature
  - Biological indices
  - E. coli
- Programmatic
  - # of brochures mailed
  - # of participants
  - # of website hits
- Social
  - Increased awareness
  - Increased # of landowners requesting technical assistance

Factors to Consider When Selecting Indicators

Validity

- Is the indicator related to your goals and objectives?
- Is the indicator appropriate in terms of geographic and temporal scales?

Clarity

- Is the indicator simple and direct?
- Do the stakeholders agree on what will be measured?
- Are the methodologies consistent over time?

Practicality

- Are adequate data available for immediate use?
- Are there any constraints on data collection?

Clear Direction

- Does the indicator have clear action implications depending on whether the change is good or bad?