



## Article 28

Chapter 1 from *The Rapid Watershed Planning Handbook*

# Basic Concepts in Watershed Planning

This article introduces some of the basic watershed concepts that are at the heart of the rapid watershed planning approach. It is helpful to fully understand these concepts before embarking on a local watershed plan.

**Concept No. 1. There are many different watershed management units.**

Watershed and subwatershed units are most practical for local plans. Each watershed is composed of many individual subwatersheds that can have their own unique water resource objectives. A watershed plan is a comprehensive framework for applying management tools within each subwatershed in a manner that also achieves the water resources goals for the watershed as a whole.

When developing a watershed plan, it is useful to consider how watersheds are configured. The term **management unit** is used to describe watersheds and their smaller segments. The two management units that will be focused upon in this handbook are the **watershed** and the **subwatershed**. A **watershed** can be defined as the land area that contributes runoff to a particular point along a waterway. A typical watershed can cover tens to hundreds of square miles and several jurisdictions.

Watersheds are broken down into smaller geographic units called **subwatersheds**. Subwatersheds typically have a drainage area of two to 15 square miles

with boundaries that include the land area draining to a point at or below the confluence of two second order streams and almost always within the limits of a third order stream. While management unit size will vary among geographic regions and also as a function of slope, soils and degree of urbanization, this general definition provides a consistent and uniform basis for defining individual subwatershed boundaries within a larger watershed.

The terms “watershed” and “subwatershed” are *not* interchangeable. The term **watershed** is used when referring to broader management issues across an entire watershed, while the term **subwatershed** is used to refer assessment level studies and specific projects within the smaller subwatershed units.

There are other important management units to consider when developing a watershed plan. The largest watershed management unit is the basin. A **basin** drains to a major receiving water such as a large river, estuary or lake. Basin drainage areas typically exceed several thousand square miles and often include major portions of a single state or even a group of states. Within each basin are a group of **sub-basins** that extend over several hundred square miles. Sub-basins are a mosaic of many diverse land uses, including forest, agriculture, range, and urban areas. Sub-basins are composed of a group of watersheds, which, in turn, are composed of a group of subwatersheds. Within subwatersheds are **catchments**, which are the smallest units in a watershed. A **catchment** is defined as the area that drains an individual development site to its first intersection with a stream.

**Table 1: Description of the Various Watershed Management Units**

Watershed Management Unit	Typical Area (square miles)	Influence of Impervious Cover	Sample Management Measures
Catchment	0.05 to 0.50	very strong	practices and site design
Subwatershed	1 to 10	strong	stream classification and management
Watershed	10 to 100	moderate	watershed-based zoning
Subbasin	100 to 1,000	weak	basin planning
Basin	1,000 to 10,000	very weak	basin planning