



SYSTEM DIMENSIONS	CHEMICAL AND PHYSICAL	BIOLOGICAL COMPONENTS	HUMAN USES
Extent Pattern	Nutrients, Carbon, Oxygen Contaminants Physical	Plants and Animals Communities Ecological Productivity	Food, Fiber, and Water Recreation and Other Services

⊖ Status of Animal Communities in Urban and Suburban Streams

What Is This Indicator, and Why Is It Important?

This indicator reports on “biological integrity” in streams in urban and suburban areas. Biological integrity is a measure of the degree to which the suite of fish and bottom-dwelling (or benthic) animals (including insects, worms, mollusks, and crustaceans) resembles what one might find in a relatively undisturbed stream in the same region. Tests assess the number of different species, number and condition of individuals, and food chain interactions. High scores indicate close resemblance to “reference” or undisturbed conditions, and low scores indicate significant deviation from them. (See also Status of Freshwater Animal Communities, p. 147.)

Undisturbed streams in a particular region have a relatively predictable set of fish and bottom-dwelling animals, in predictable proportions. The composition and condition of these biological communities may be altered, often as a result of development in the stream’s watershed. Sources of degradation include contaminated runoff from streets, driveways, lawns, golf courses, and the like, increased stream temperature caused by runoff that is warmed as it flows over paved surfaces, and channelizing or other modifications of the streambed. Some streams are so modified that, for example, both the number of species and the number of individuals are very low when compared to undisturbed areas, and many of those that remain are diseased or otherwise damaged. Ecosystems that are “healthy,” or show high integrity, are more likely to withstand natural and man-made stresses.

Why Can’t This Indicator Be Reported at This Time? The tests of biological integrity now in use must be tailored to ensure that each stream is compared with an appropriate reference from within the same region, but outside of the urban/suburban area. Only a handful of states regularly conduct quantitative tests of condition of fish or bottom-dwelling animal communities, and these are not specific to urban streams.

The technical note for this indicator is on page 269.

