



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

Condition of Bottom-Dwelling Animals

What Is This Indicator, and Why Is It Important?

This indicator describes the condition of worms, clams, snails, and shrimplike animals in bottom sediments (“benthic communities”) by reporting the percentage of area in which these communities are in “undegraded,” “moderate,” and “degraded” condition. The indicator is calculated by comparing the number and kinds of animals found in a sampling site with those that would be expected in an undisturbed area of similar character (a reference site). The indicator would be reported for estuaries and for ocean areas within 25 miles of the coast.

Benthic communities reflect the influence of contaminants, oxygen levels, physical changes in habitat (such as from trawling), and shifts in temperature or salinity. They are a good indicator because contaminants accumulate in bottom sediments and hypoxia (lack of oxygen) is most severe there. Also, these animals live several years, so their response reflects exposure to these stresses over a long period, and they are fairly immobile, so their condition strongly reflects conditions at the site where they were collected (see the depleted oxygen and sediment contamination indicators, pp. 71 and 72).

Why Can’t This Entire Indicator Be Reported at This Time? Data are available from estuaries in most regions of the country, but the tools needed to compare benthic communities with those in undisturbed sites have been developed for only three regions. Additional work is also needed to ensure that the indicators developed for different regions are comparable. Only limited data are available for ocean waters out to 25 miles.

What Do the Data Show? At least half the estuary area in the Mid-Atlantic, South Atlantic, and Gulf of Mexico regions has “undegraded” bottom-dwelling animal communities. About 20% of estuary area in these regions has “degraded” bottom-dwelling animal communities.

Discussion “Undegraded” means that the benthic animals found at a site are similar in number and type of species to those expected in an undisturbed site in that region. “Degraded” means that the animals found are quite different from those at a reference site, reflecting one or more negative influences.

The technical note for this indicator is on page 225.

