

## Increase in impervious surface

Human Health Risk

Ecological Risk

M - H

Socioeconomic Risk

Impervious surface is any material that prevents infiltration of water into soil. Roads, rooftops, and parking lots are examples of impervious surfaces. While the natural environment also contains impervious elements (e.g., bedrock surfaces), significant increases in the extent of developed areas have dramatically altered the proportion of impervious surfaces to natural vegetation. The resulting changes in the quantity and quality of storm runoff to receiving waterbodies creates adverse effects on ecosystem health by increasing erosion, degrading habitat, and altering natural stream flow patterns.

### What's at risk?

Aquatic, wetland, floodplain, and upland animals and plants statewide are at some risk from increased imperviousness. Rare plant and animal species are likely at greater risk—particularly those that are directly impacted such as swamp pink and bog turtles. Approximately 36% of New Jersey's native plants and 7% of vertebrate species are in danger of becoming increasingly rare or extinct. Socioeconomic impacts of impervious surface are included among the impacts discussed under Land Use Change.

### What are the ecological impacts in New Jersey ecosystems?

Major influences on stream quality for New Jersey include: increased human activity/density and paved surface; increased surface runoff and chemical use; and decreased base flow, forested area and wetlands—all factors which directly or indirectly relate to impervious surface cover. About one third of the land area in the state is already affected by an average impervious surface cover of over 10%, the threshold for impairments to benthic (bottom-dwelling) community structure. Sixty-five percent of monitored waterways in New Jersey have moderately to severely impaired benthic communities, and all but one small watershed with more than 25% impervious area showed moderate to severe impairment. Studies in New Jersey have also documented a relationship between storm water impacts such as erosion and decreasing or absent populations of the globally rare swamp

pink and endangered bog turtle. Marine systems are similarly affected. Seventy-nine percent of near shore ocean waters were assessed as “threatened” based on dissolved oxygen levels. While there are multiple contributing factors, several, including river inputs and storm water runoff, are consistent with impervious cover.

### What's being done?

There is a modest set of policy responses affecting the growth of impervious surface area. The Coastal Area Facility Review Act (CAFRA) limits development in coastal areas. New regulations for reducing storm water flows will apply to new developments. Stream encroachment and wetlands permits provide buffers for threatened and endangered species.