Stream Health Fact Sheet

Impacts of Impervious Land Cover on Maryland Streams

What is impervious land cover?

Impervious land cover includes all hard surfaces, paved roads, sidewalks, parking lots, roofs, and highly compacted soils like sports fields.

Longwell Branch, in Carroll County before and after a rain storm.

Why is impervious land cover harmful to streams?

Impervious surfaces prevent rain water from soaking into the ground, filtering through soils, and slowly seeping into streams. Instead, the rain water accumulates and flows rapidly into storm drains. Impervious land cover is harmful to streams in three important ways:

1. Water Quantity

Storm drains deliver large volumes of rain water to streams much faster than what would occur naturally. Rapid runoff causes flooding and stream bank erosion. Stream inhabitants, such as fishes, salamanders, and aquatic insects, are displaced, stressed, or killed by this fast-flowing water and debris. Sediment resulting from upstream erosion settles in streambeds and destroys bottom habitat favored by aquatic insects and fishes.


Severe stream bank erosion in Minebank Run, Baltimore County .

2. Water Quality

Pollutants such as spilled gasoline, engine oil, heavy metals, detergents, fertilizers, and pesticides accumulate on impervious surfaces during dry periods. Heavy rainfall will flush these pollutants directly into nearby streams. These pollutants are toxic to aquatic stream life.

3. Water Temperature

During warm weather, rain that falls on warm pavement becomes superheated. Hot water flows directly to streams via storm drains and can be stressful or even fatal to stream inhabitants.

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How much impervious land cover is a problem for aquatic life?

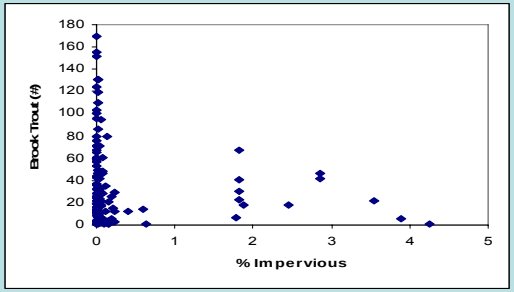
Nearly all stream inhabitants are negatively affected by impervious land cover. Here are some examples:

Brook Trout: Maryland's only native trout have a low tolerance to impervious land cover.

Loss of brook trout can occur in watersheds with as little as…

4%

impervious land cover.

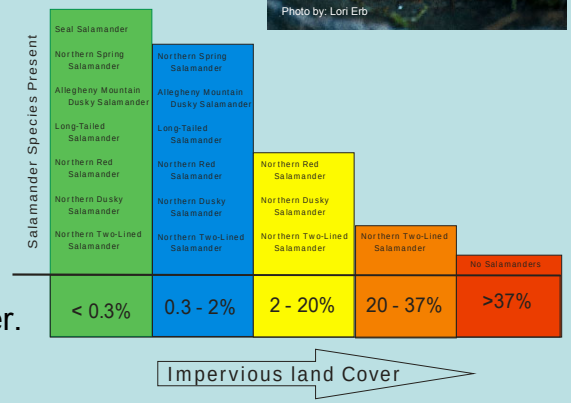


Salamanders: Stream salamanders are especially sensitive to the effects from impervious land cover.

Loss of some species can occur in watersheds with as little as…

0.3%

impervious land cover.



What can be done to reduce the harmful effects of impervious land cover on streams?

Plant rain gardens – Rain gardens are areas that are planted with native plants so that rain from roofs and paved surfaces can collect and soak into the ground. For more information, visit: http://www.raingardens.org/.

Use rain barrels – Rain barrels are containers that intercept and collect rain from roofs for later use in gardens. They help reduce rapid runoff to storm drains and streams. For more information, visit: http://www.dnr.state.md.us/ed/rainbarrel.html.

Use Low Impact Development principles – Low Impact Development is an approach to development that lessens the amount and impacts of impervious land cover to the landscape and streams. For more information, visit: http://www.lowimpactdevelopment.org/.

For more information on impervious land cover and stream health, visit our website at: http://www.dnr.state.md.us/streams/mbss/ or call us at 1-877-620-8DNR x8605