

# what's a watershed?

No matter where you are in New Jersey, you are in a watershed. Watersheds are everywhere ... from your front doorstep to the local park to the shopping mall to the creek down the road. Watersheds are the link between our land, our water and our communities because the quality of our water is linked to how we use the watershed surrounding it.

*So what is a watershed?*

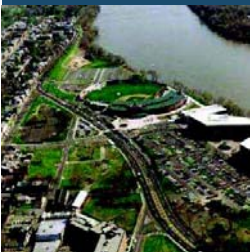
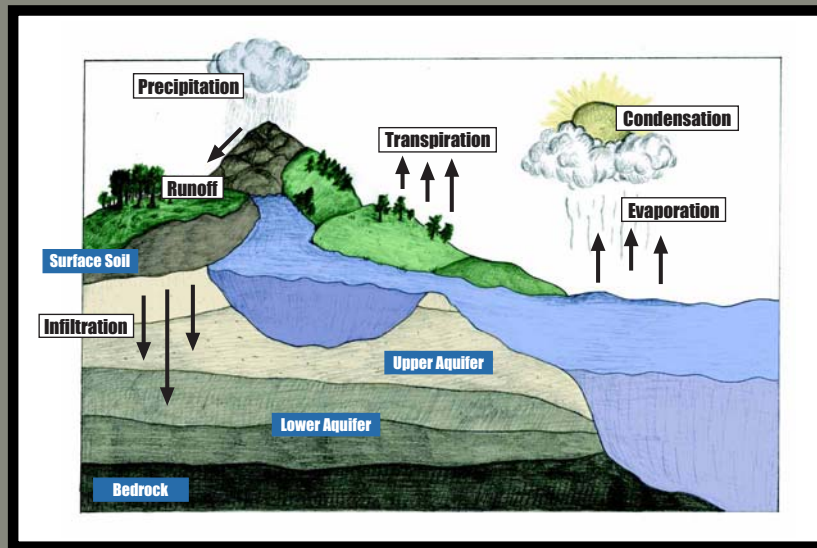


## what's a watershed?

A watershed is the area of land that drains into a body of water such as a river, lake, stream or bay. It is separated from other watersheds by high points in the area such as hills or slopes. It includes not only the waterway itself but also the entire land area that drains to it. For example, the watershed of a lake would include not only the streams entering that lake but also the land area that drains into those streams and eventually the lake. Drainage basins generally refer to large watersheds that encompass the watersheds of many smaller rivers and streams.

## what's the water cycle?

For millions of years, water has been constantly recycled and reused. When it rains, the rainwater flows over land into waterways or is absorbed by the ground or plants. Water evaporates from land and water bodies becoming water vapor in the atmosphere. Water is also released from trees and other plants through "transpiration." The water vapor from evaporation and transpiration forms clouds in the atmosphere which in turn provide precipitation (rain, hail, snow, sleet) to start the cycle over again. This process of water recycling, known as the water cycle, repeats itself continuously.



## what's ground water?

A sizable amount of rainwater runoff seeps into the ground to become ground water. Ground water moves into water-filled layers of porous geological formations called aquifers. If the aquifer is close to the surface, its ground water can flow into nearby waterways or wetlands, providing a base flow. Depending on your location, aquifers containing ground water can range from a few feet below the surface to several hundred feet underground. Contrary to popular belief, aquifers are not flowing underground streams or lakes.

Ground water is the primary drinking water source for half of the state's population. Most of this water is obtained from individual domestic wells or public water supplies which tap into aquifers. The other sources of drinking water are surface water reservoirs and rivers.

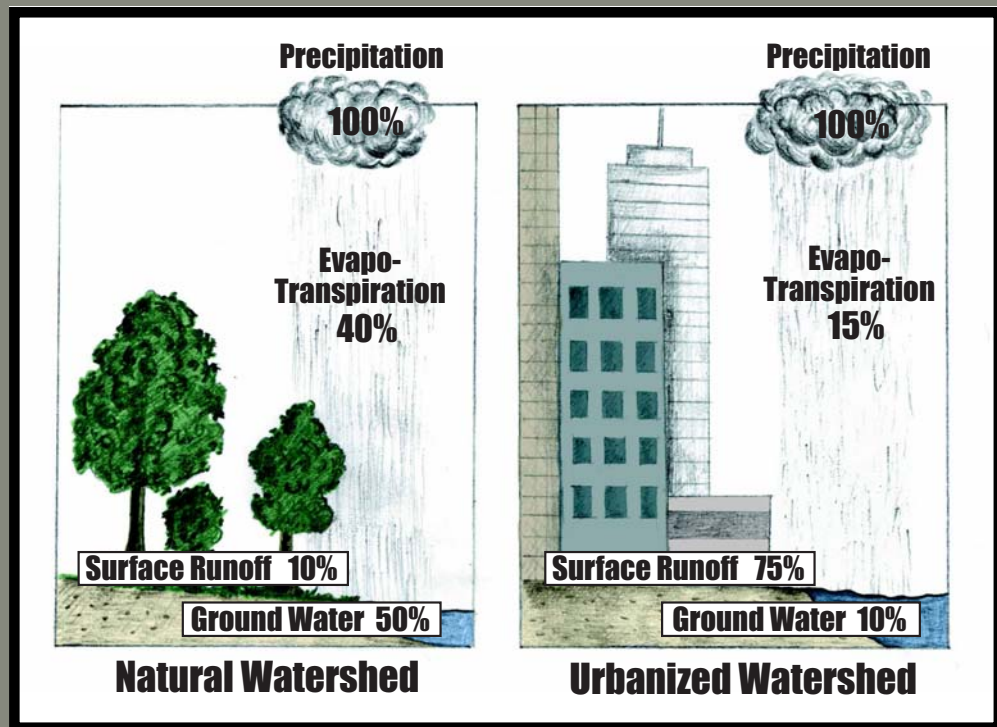
# how does urbanization change a watershed?

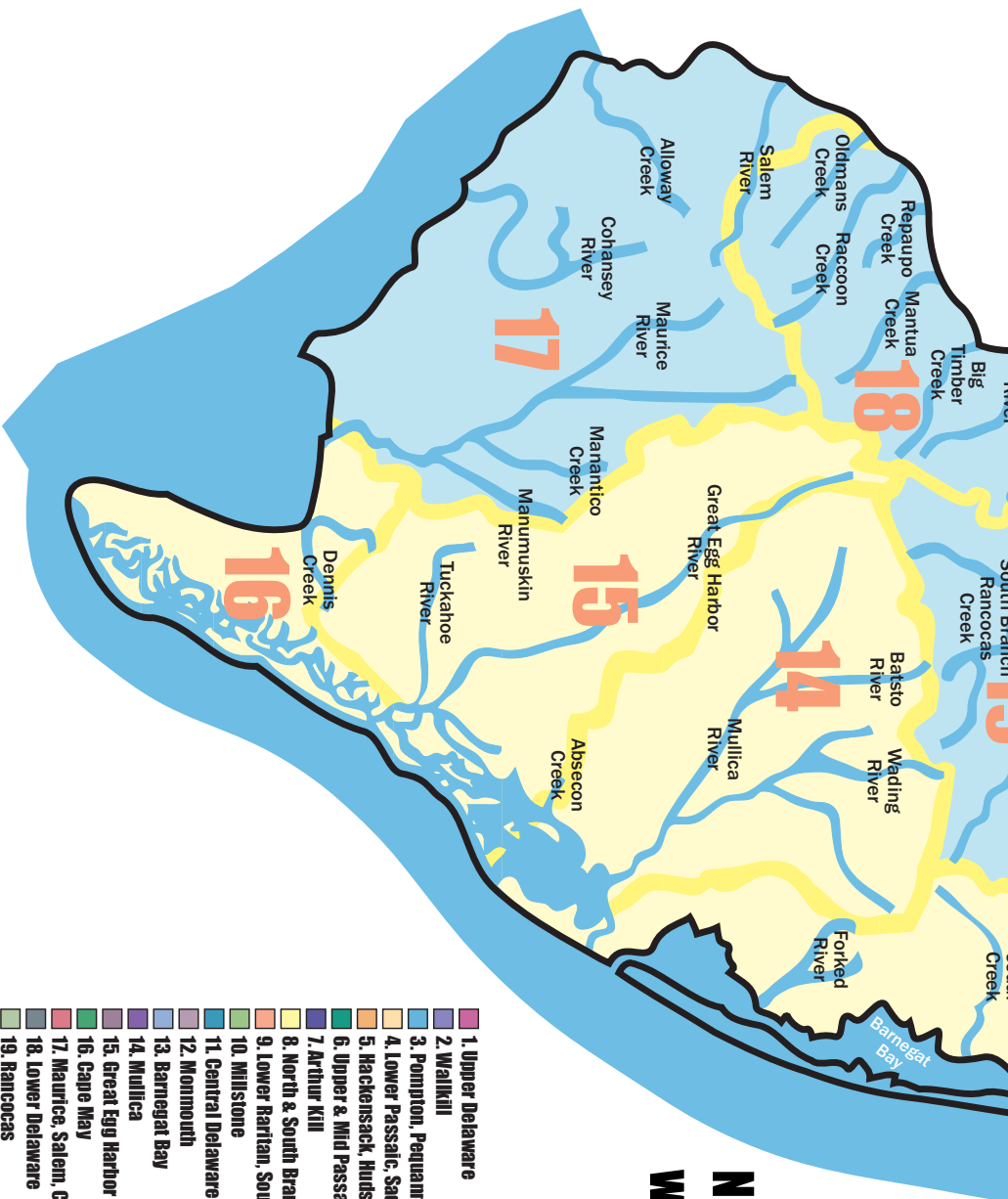
Urbanization (or development) has a great effect on local water resources. It changes how water flows in the watershed and what flows in the water. Both surface and ground water flow are changed.

As a watershed becomes developed, trees, shrubs and other plants are replaced with impervious surfaces (roads, rooftops, parking lots and other hard surfaces that do not allow stormwater to soak into the ground). Without the plants to store and slow the flow of stormwater, the rate of stormwater runoff is increased. Less stormwater soaks into the ground because the sidewalks, roads, parking lots and rooftops block this infiltration. This means a greater volume of water reaches the waterway faster and less water infiltrates to ground water. This in turn leads to more flooding after storms and reduced flow in streams and rivers during dry periods. The reduced amount of infiltrating water can lower ground water levels, which in turn can stress local waterways that depend on steadier flows of water.

In the stream, more erosion of stream banks and scouring of channels will occur due to volume increase. This in turn degrades habitat for plant and animal life that depend on clean water. Sediment from eroded stream banks clogs the gills of fish and blocks light needed for plants. The sediment settles to fill in stream channels, lakes and reservoirs. This also increases flooding and the need for dredging to clear streams or lakes for boating.

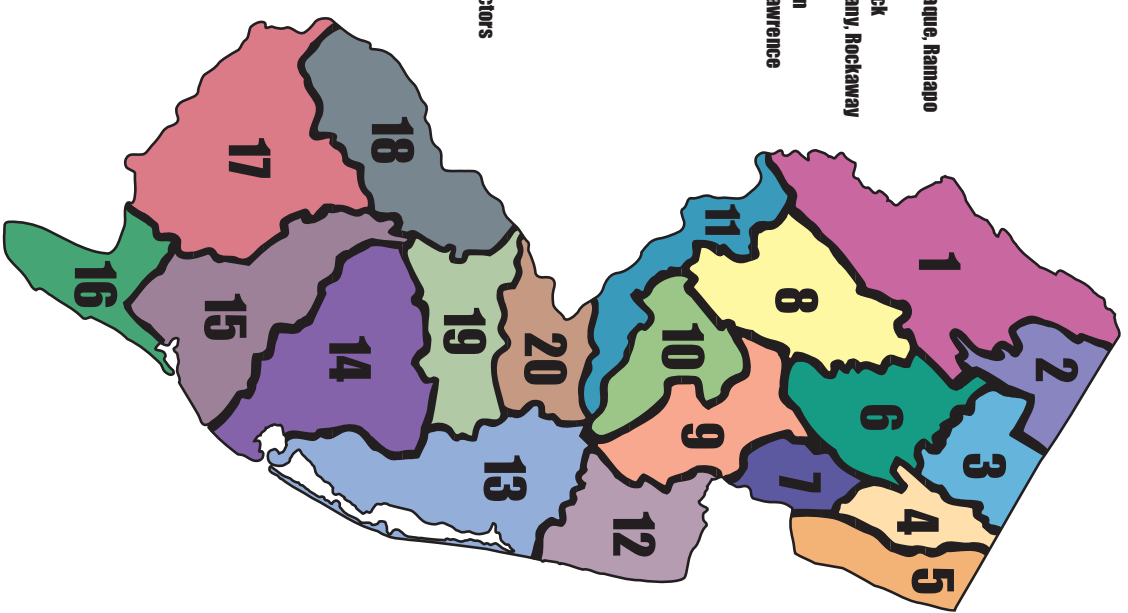
In addition to the high flows caused by urbanization, the increased runoff also contains increased contaminants. These include litter, cigarette butts and other debris from sidewalks and streets, motor oil poured into storm sewers, heavy metals from brake linings, settled air pollutants from car exhaust and pesticides and fertilizers from lawn care. These contaminants reach local waterways quickly after a storm.





# New Jersey's 20 watershed management areas

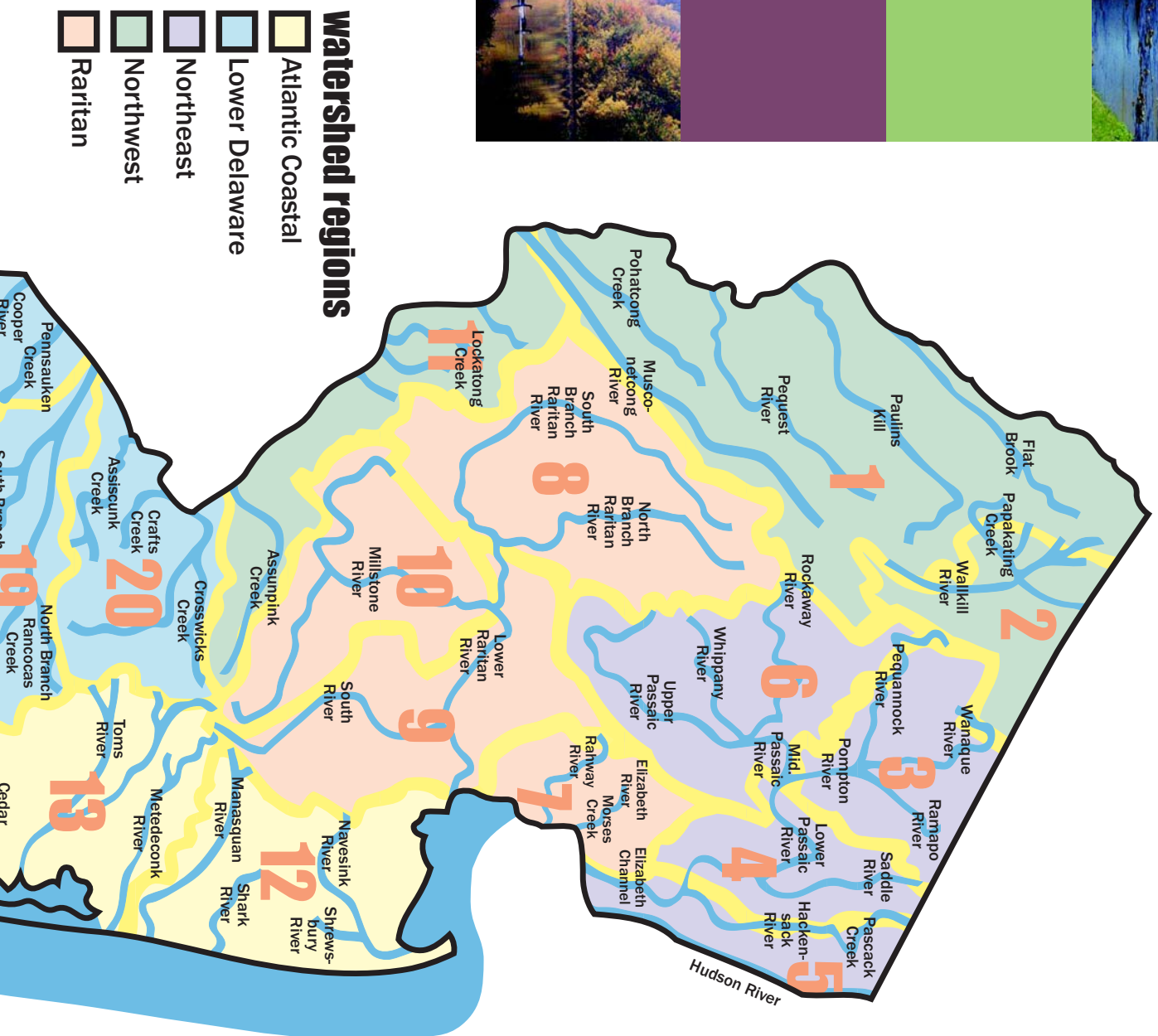
- 1. Upper Delaware
- 2. Walkkill
- 3. Pompton, Pequannock, Wanauque, Ramapo
- 4. Lower Passaic, Saddle
- 5. Hackensack, Hudson, Pascack
- 6. Upper & Mid Passaic, Whippany, Rockaway
- 7. Arthur Kill
- 8. North & South Branch Raritan
- 9. Lower Raritan, South River, Lawrence
- 10. Millstone
- 11. Central Delaware
- 12. Monmouth
- 13. Barnegat Bay
- 14. Mullica
- 15. Great Egg Harbor
- 16. Cape May
- 17. Maurice, Salem, Cohansey
- 18. Lower Delaware
- 19. Rancocas
- 20. Assiscunk, Crosswicks, Doctors



For additional information please contact:  
 New Jersey Department of Environmental Protection  
 Division of Watershed Management  
 P.O. Box 418 · 401 East State Street · Trenton · New Jersey · 08625-0418  
 609-292-2113 · [www.state.nj.us/dep/watershedmgt](http://www.state.nj.us/dep/watershedmgt)



# New Jersey's five watershed regions and major waterways



Where does the water that rains on your home go? After it leaves your lawn, street or sidewalk where is it headed? Does it flow downhill straight to a nearby stream or lake? Does it wander into a wetlands? Does it puddle in your backyard? Does it zip down a storm drain to a local creek?

That destination, whether it's a puddle, a pond, a bay or a lake, is your watershed address. It could be Duck Pond, Spring Lake, Millstone River, Barnegat Bay or Beaver Brook. Just like there are towns within counties within states, there are subwatersheds within watersheds within drainage basins. For example, the rain that falls on your driveway might flow into Lake Hopatcong, which flows into the Musconetcong River, which flows into the Delaware River. So your watershed address would be Lake Hopatcong, Musconetcong River, Delaware River even though your mail finds you through Jefferson Township, Morris County, New Jersey.

**Dispose of household hazardous waste properly.** Do not pour household hazardous products down any drain or toilet. Do not discard with the regular household trash. Use natural and less toxic alternatives whenever possible. Contact your County Solid Waste Management Office for information regarding household hazardous waste collection in your area. Many common household products (paint thinners, mothballs, drain and oven cleaners, to name a few) contain toxic ingredients. When improperly used or discarded, these products are a threat to public health and the environment.

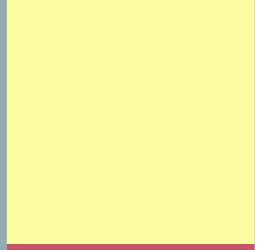
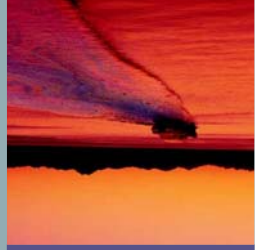
**Recycle all used motor oil.** Do not dump used motor oil down storm drains or on the ground. Take used motor oil to a local public or private recycling center. Used motor oil contains toxic chemicals that are harmful to animals, humans and fish.

**Wash your car only when necessary.** Consider using a commercial car wash. Like fertilizers, many car detergents contain phosphate. If you wash your car at home, use a non-phosphate detergent and do it on your lawn.

**Treat your septic system with respect.** Avoid adding unnecessary grease, household hazardous products and solids to your septic system. Conserve water. Inspect your tank annually and pump it out every three to five years depending on its use. An improperly working septic system can contaminate ground water and create public health problems.

**Use marine sanitation devices and pump-out facilities when boating.** Observe no discharge zones. Dumping boat sewage onboard introduces bacteria and viruses into the water.

Your everyday activities can affect your water. You can help reduce the amount of pollution in our water. Just being concerned about the environment is not enough; now you can help improve it!



# What is stormwater pollution?

Whether you call it stormwater pollution, polluted runoff, people pollution, watershed pollution or nonpoint source pollution, it all boils down to the same problem:

As stormwater travels across lawns, parking lots, gardens, roofs, and roadways, it picks up trash (such as candy wrappers, cigarette butts and cups) and other less visible pollutants (such as gasoline, motor oil, antifreeze, fertilizers, pesticides and pet waste). This polluted runoff flows directly into storm drains, rivers, lakes, streams and the ocean. Once polluted, runoff reaches the water, it can contaminate drinking water supplies, kill fish and other wildlife, and force the closing of bathing beaches because of health threats to swimmers.

Human activity is largely responsible for the stormwater pollution. Everything that we put on the ground or into the storm drain can end up in our water. Each of us has a responsibility to make sure these contaminants stay out of our water. Whether we have clean water is up to you.

But there is good news - you have the power to stop your contribution to stormwater pollution and keep your environment clean. Simple changes can make a tremendous difference. Here are just a few ways you can help:

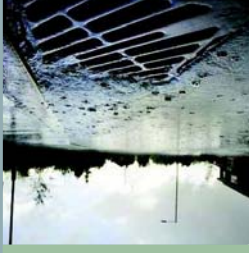
**Place litter in trash cans.** Place litter, including cigarette butts and fast food containers, in trash receptacles. Never throw litter in streets or down storm drains. Recycle as much as possible.

**Use less fertilizer.** Do a soil test to see if fertilizers are necessary. Fertilizers contain nutrients that, in abundance, cause blooms of algae that can lead to fish kills. Avoid the overuse of fertilizers and do not apply them before a heavy rainfall.

**Use alternatives to pesticides whenever possible.** If you do use a pesticide, follow the label directions carefully. Many household products made to exterminate pests are also toxic to humans, animals, aquatic organisms and plants.

**Pick up after your pet and dispose of waste in the garage or toilet, not the storm drain.** Animal wastes contain bacteria and viruses that can contaminate shellfish and cause the closing of bathing beaches. Animal waste also contains nutrients that can cause unsightly algae blooms that can lead to fish kills.

**Do not feed ducks and geese.** Feeding ducks, geese and other waterfowl causes them to concentrate in small areas resulting in concentrated animal waste, causing the same problems as pet waste.



*So what can you do to protect your water?*

Stormwater is rain or melting snow. Stormwater washes pollutants into storm drains and directly into lakes, rivers and the ocean.

# What is stormwater?

