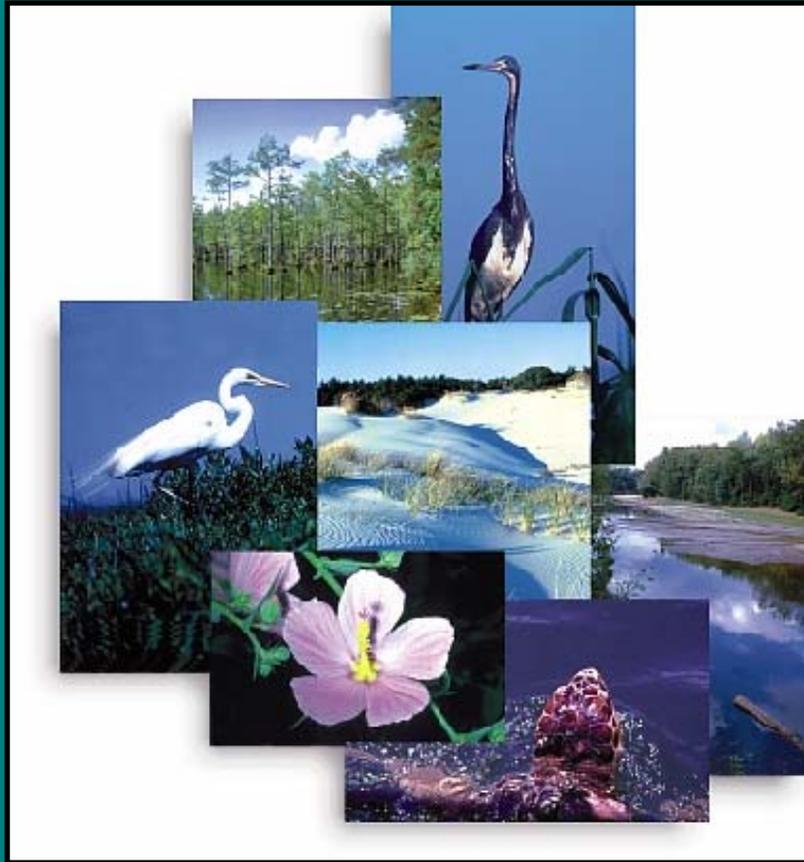


# North Carolina Coastal Federation

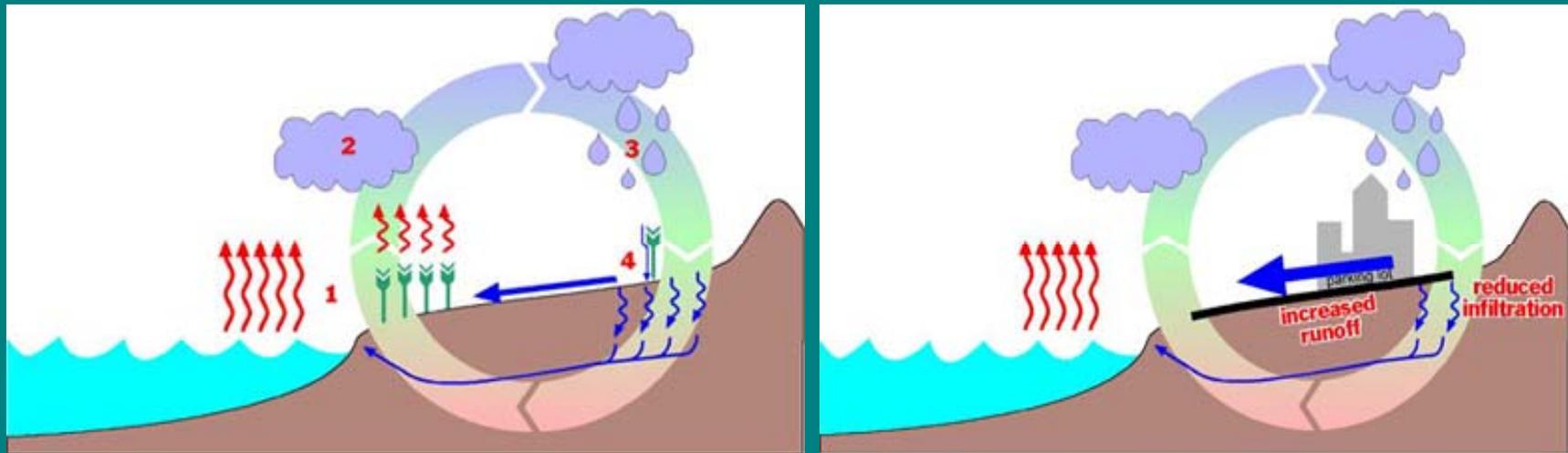


- Founded in 1982
- 8,000 Citizen Members
- 150 Affiliated Groups
- Staff of 18
- 28 Board Members
- NC's Largest Non-Profit Working on Coastal Issues

Advocacy • Education • Restoration/Preservation

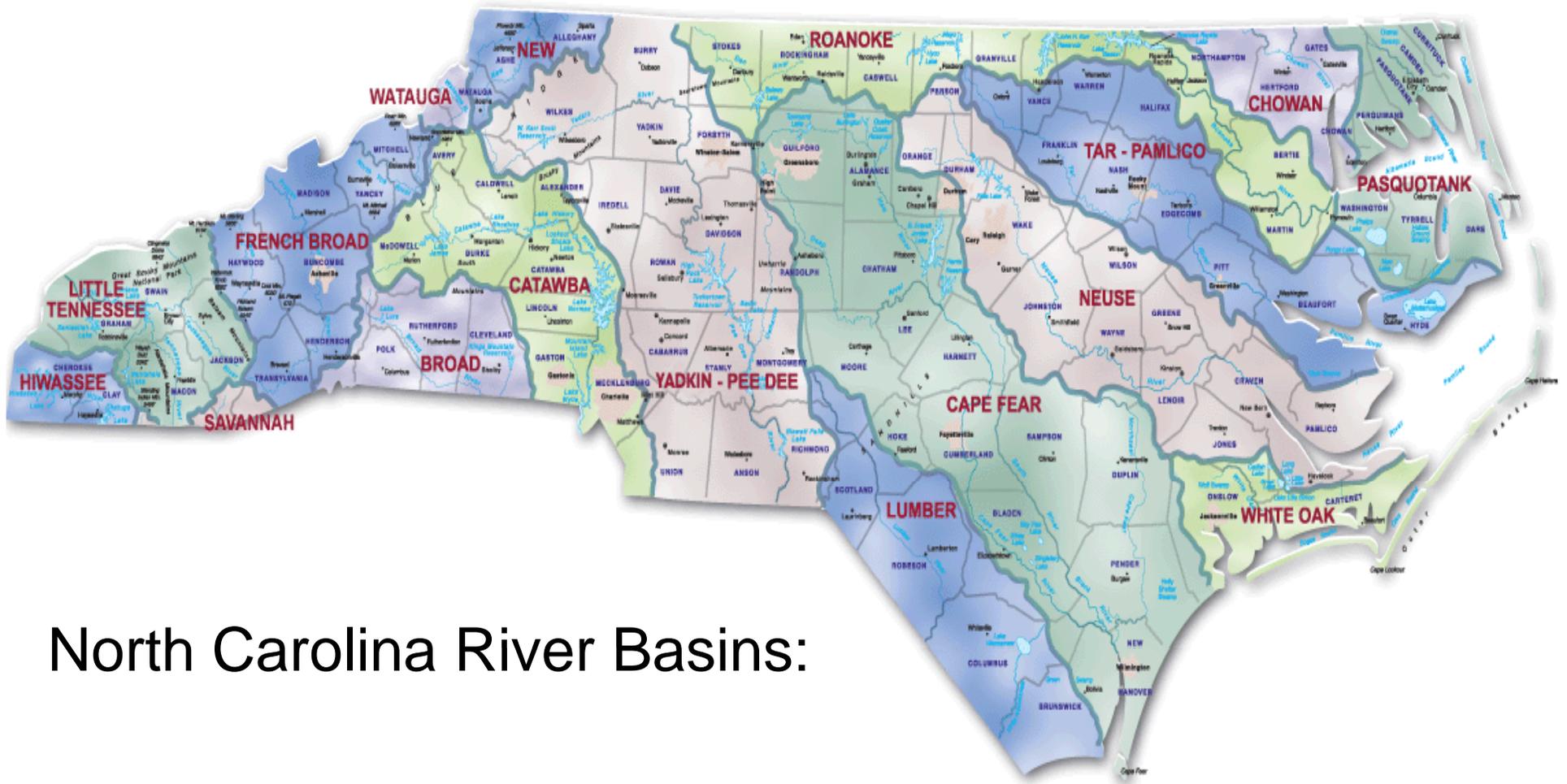


# How Is Water Generated?



1. Evapotranspiration
2. Condensation
3. Precipitation
4. Runoff

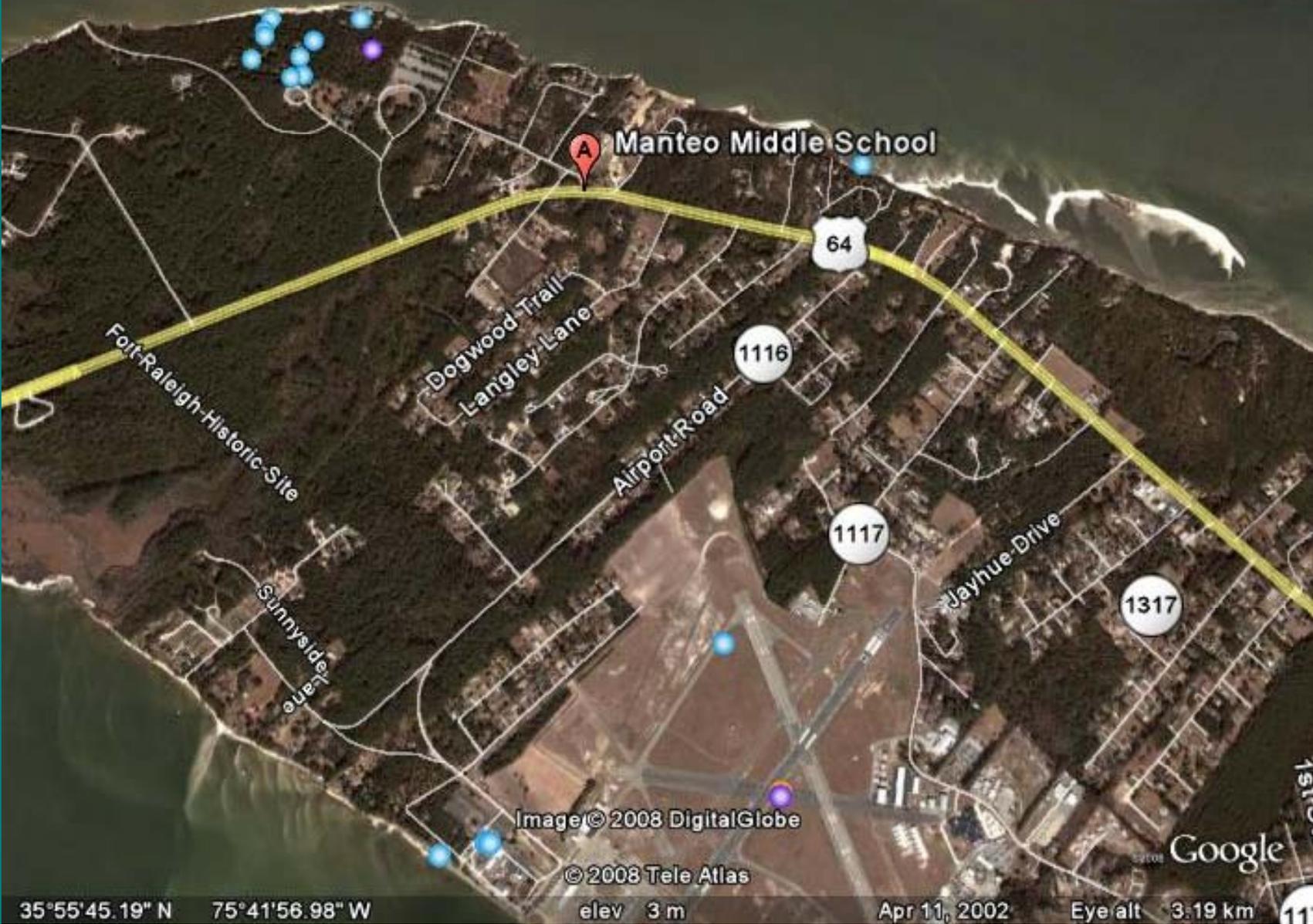
hydrology: the science dealing with the waters of the earth, their distribution on the surface and underground, and the cycle involving evaporation, precipitation, and flow to the seas.



## North Carolina River Basins:

the entire geographical area drained by a river and its tributaries;  
an area characterized by all runoff being conveyed to the same outlet.

# Croatan Sound



35°55'45.19" N 75°41'56.98" W

elev 3 m

Apr 11, 2002

Eye alt 3.19 km

11

# Where We Live:



NC is the 10<sup>th</sup> Most Populous State and  
THE fastest growing state east of the Mississippi.  
People are coming and staying



# Where We Live:



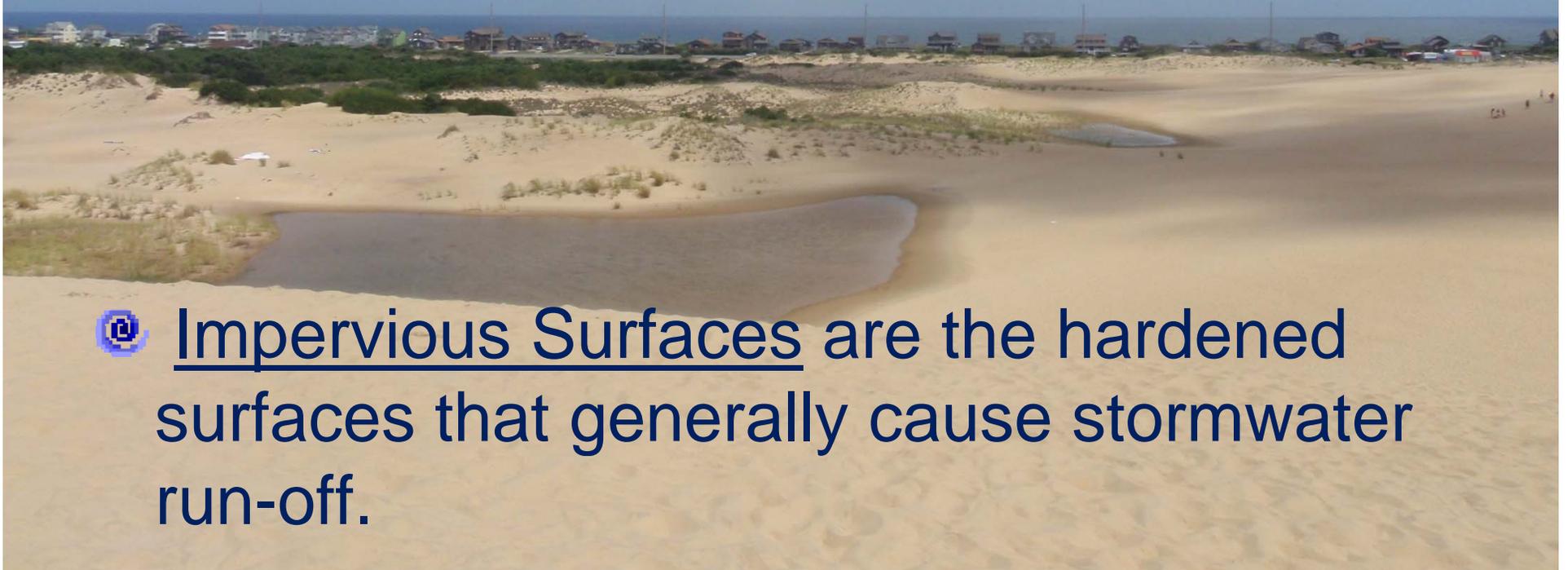
# Where We Live:



# What is Stormwater?

④ The rainwater that flows off of hardened surfaces, rather than infiltrating naturally into the ground.

④ Impervious Surfaces are the hardened surfaces that generally cause stormwater run-off.

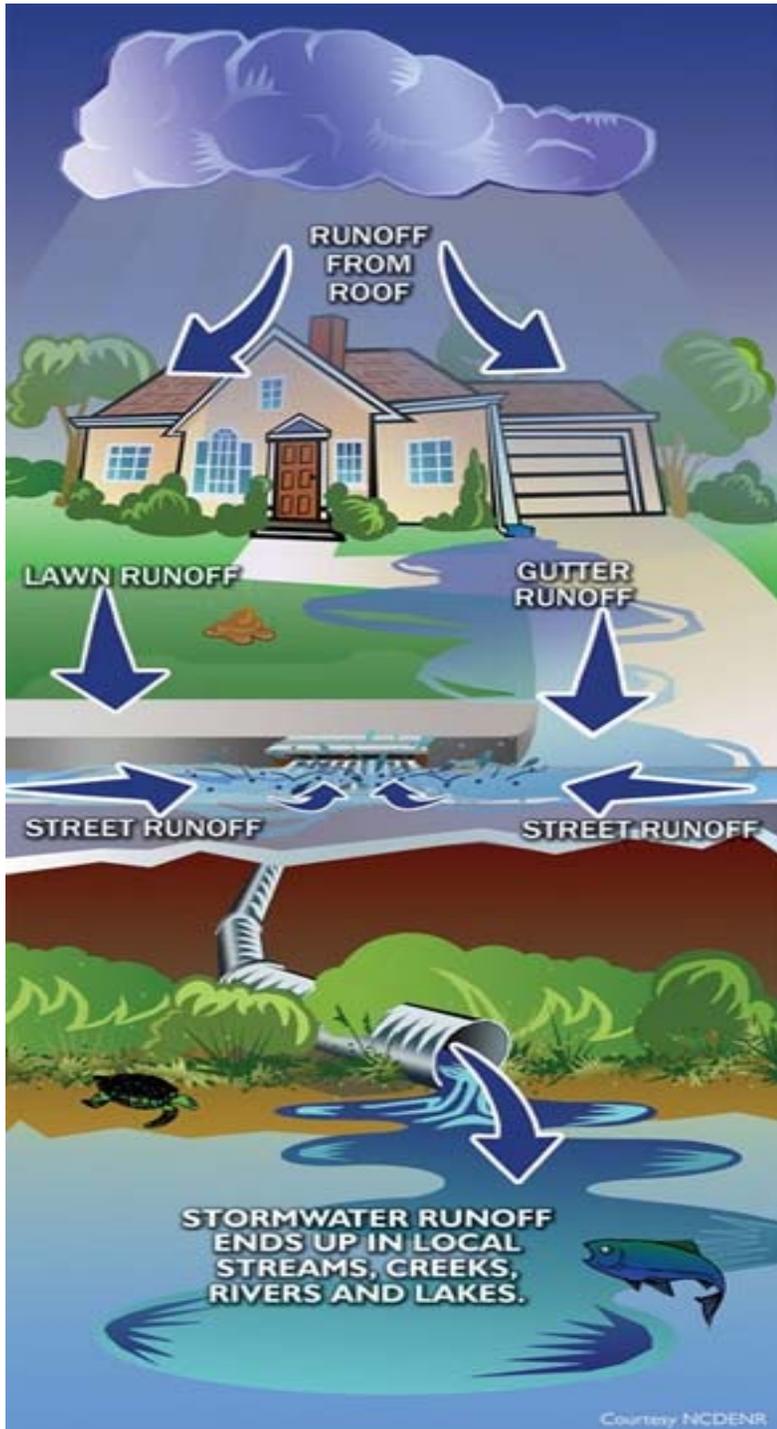


# Impervious Surfaces



# Stormwater Runoff:

... is rain that washes off driveways, parking lots, yards, and other hard surfaces. It picks up pollution, such as bacteria, chemicals, and trash, and washes them into creeks, rivers, sounds, or into the ocean!





# Why does this happen?

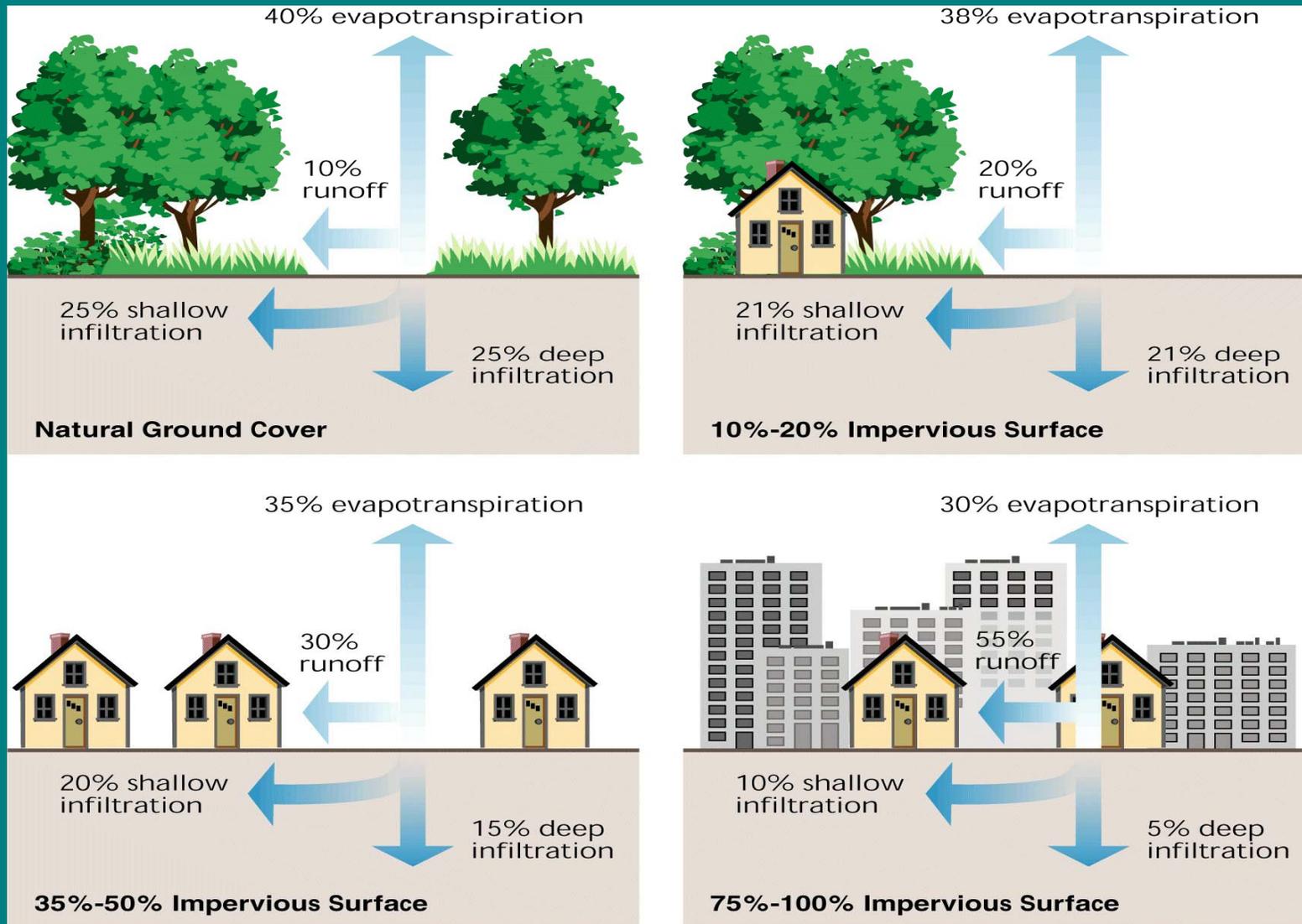


Fig. 3.21 -- Relationship between impervious cover and surface runoff. Impervious cover in a watershed results in increased surface runoff. As little as 10 percent impervious cover in a watershed can result in stream degradation. In Stream Corridor Restoration: Principles, Processes, and Practices (10/98). By the Federal Interagency Stream Restoration Working Group (FISRWG) (15 Federal agencies of the U.S.)

# Why is Stormwater so important?

- The pollution associated with stormwater run-off is the number one water quality problem in North Carolina.



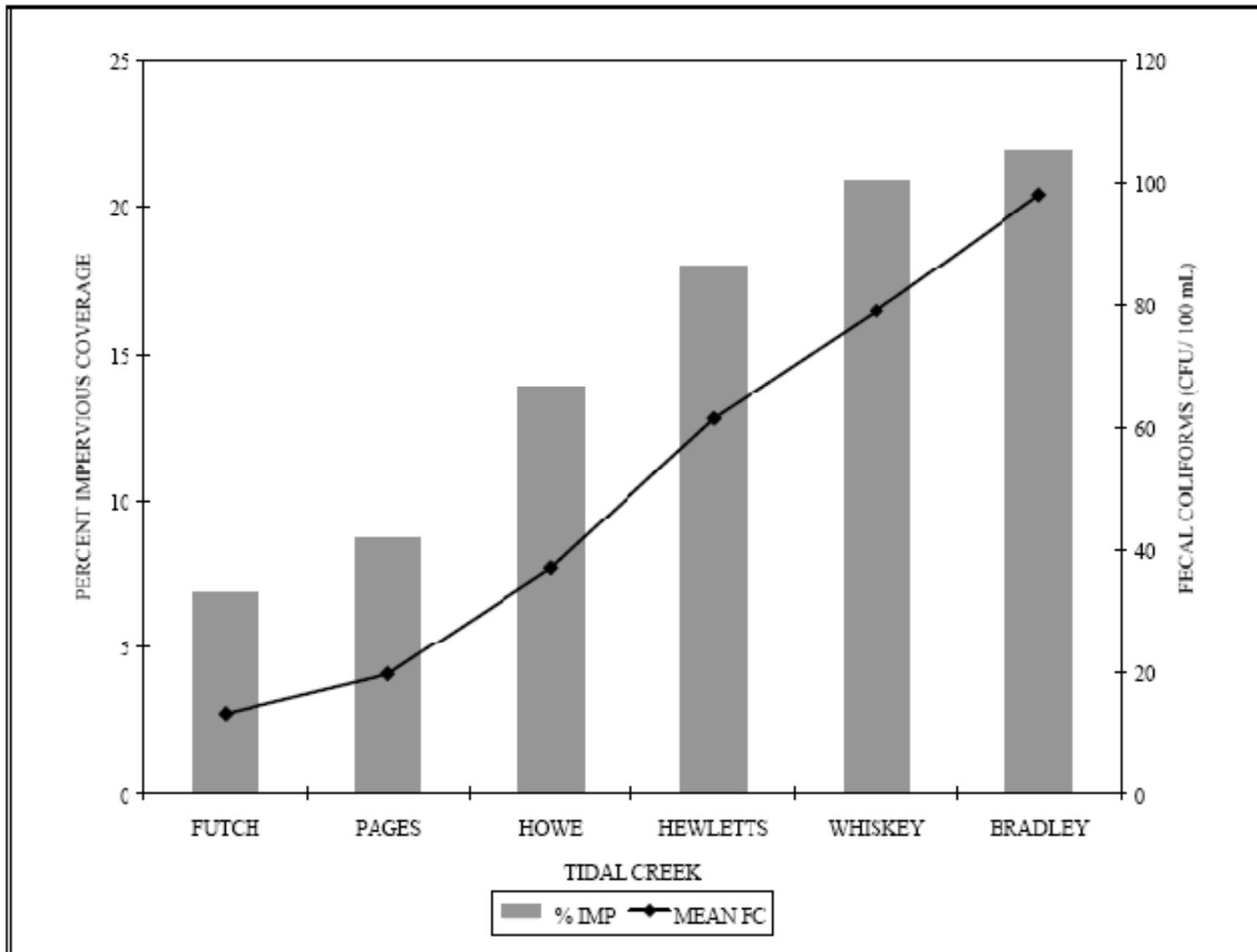


Figure 2.7. Percent watershed impervious surface coverage versus geometric mean fecal coliform bacteria counts for six New Hanover County tidal creeks. (Source: modified from Mallin et al. 2001b)

# Where does this pollution come from?





# Shellfish Closures

- 56,000 acres of shellfish waters are permanently closed to harvesting.
- Closure area nearly doubles when temporary closures are posted after it rains.

Slide: Courtesy NCSU Dept. of BAE

Good for us?  
Good for tourism?



# How We Can Help:



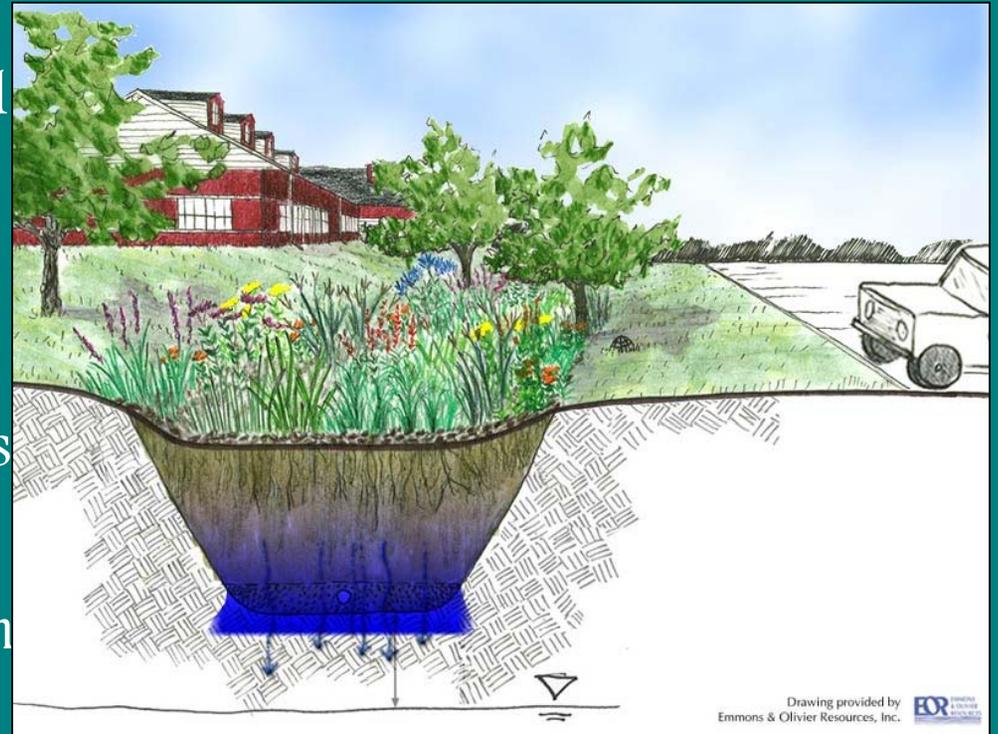
🌱 Plant rain gardens

Rain gardens with native plants capture water and allow it to soak into the ground instead of running off into storm sewers. Rain gardens copy nature!



# What is a Rain Garden?

- Shallow Depression
  - 6-9 in. deep
  - At least 2 ft. above seasonal high water
- Traps and Treats Stormwater
  - Water drains within 48 hrs
- Planted with Native Vegetation
  - Able to tolerate periods of drought and inundation





## Bioretention

- Captures
- Absorbs
- Stores
- Filters
- Redirects
- Transforms

Slide: Courtesy Kathy Mitchell

# Rain Gardens

## Benefits

- Protect from flooding
- Roots help filter pollutants
- Recharge local groundwater
- Protect rivers and streams
- Use of native plants
- Create habitat for birds & butterflies
- Reduce mosquito breeding
- Look pretty!
- Perennial plants flower each year



# How We Can Help:



# Rain Garden Planting



Seaside Goldenrod



Virginia Sweetspire



Blue Flag Iris

Southern  
Wax  
Myrtle



Sweet Bay  
Magnolia



# Rain Garden Planting



© J.S. Peterson

Black-eyed Susan



New England Aster



False Leaf Sunflower



Daisy Fleabane

# How We Can Help:



The only way to prevent stormwater runoff from polluting coastal waters, is to mimic nature!

# How We Can Help:



The only way to prevent stormwater runoff from polluting coastal waters, is to mimic nature!

# How We Can Help:

- Create Living Shorelines
- Protect native oyster population
- Restore natural wetlands
- Rebuild oyster reefs using recycled shell



# Local Examples:



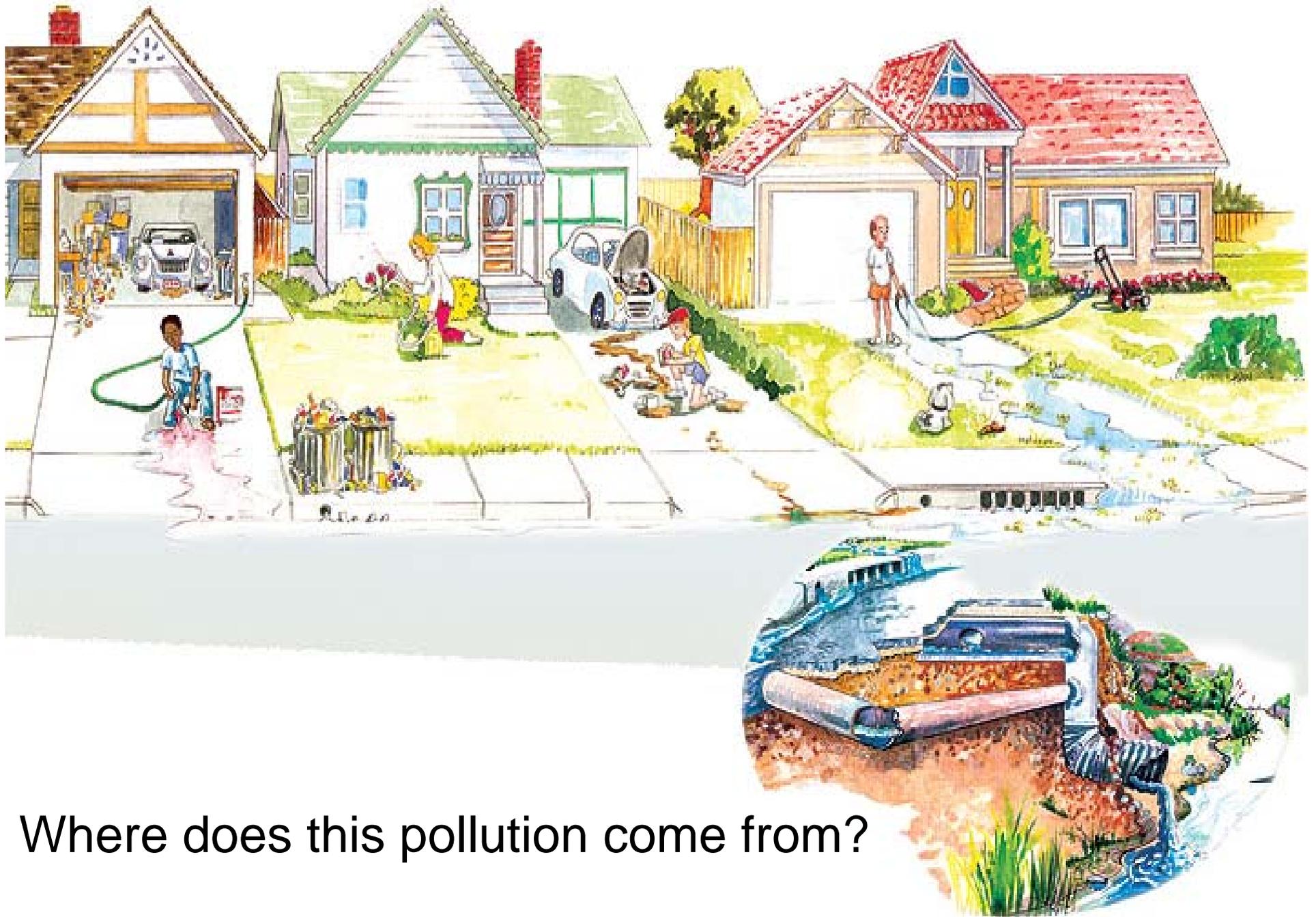
NC Aquarium on RI



Manteo High School



Manteo Town Hall



Where does this pollution come from?