

Island Watersheds: Characteristics and Threats

Watersheds and Partnerships Workshop

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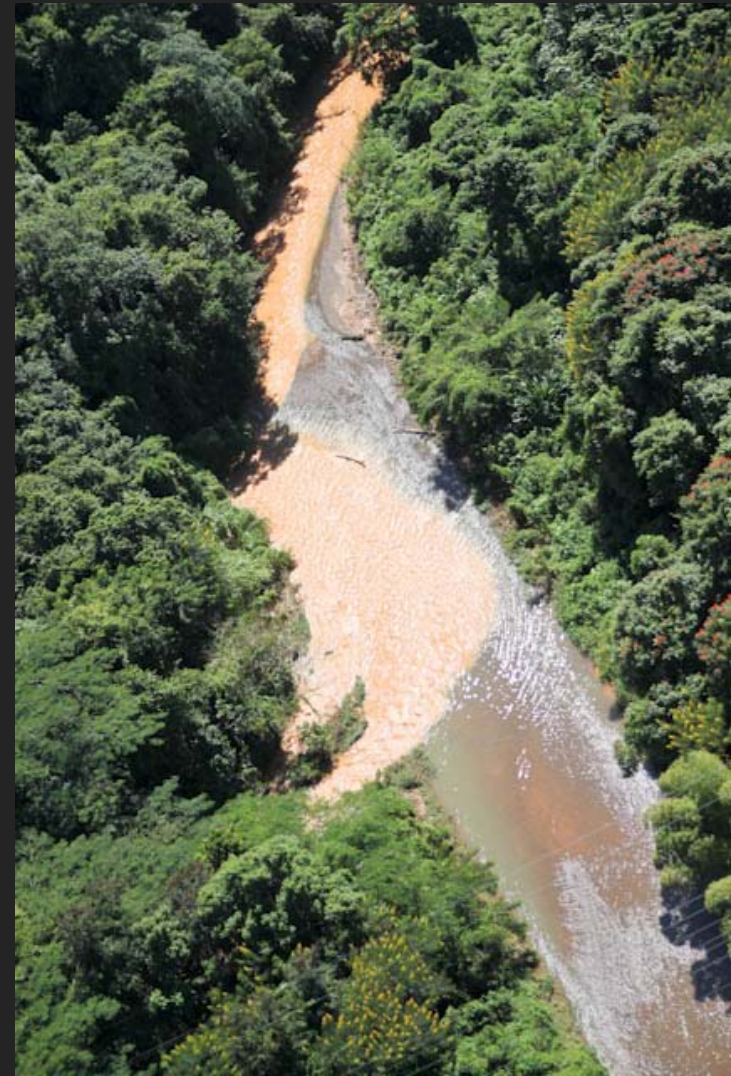
pes@cwpp.org

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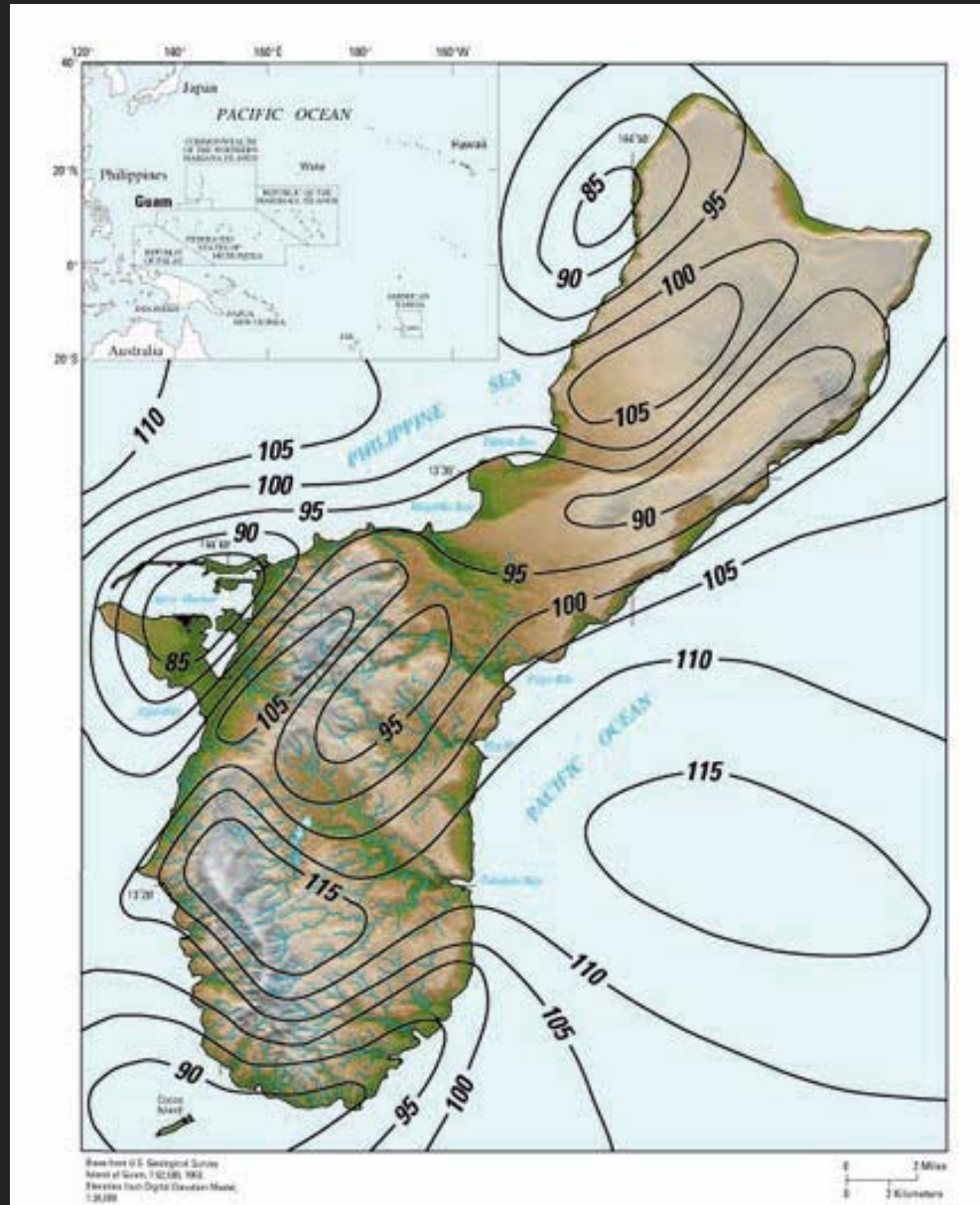


In this talk...

1. Characteristics of Island Watersheds
2. Key land based sources of pollution and solutions



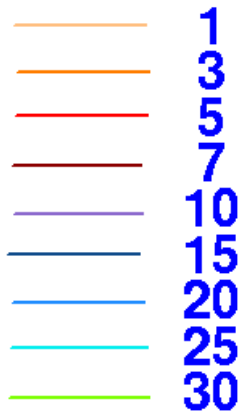
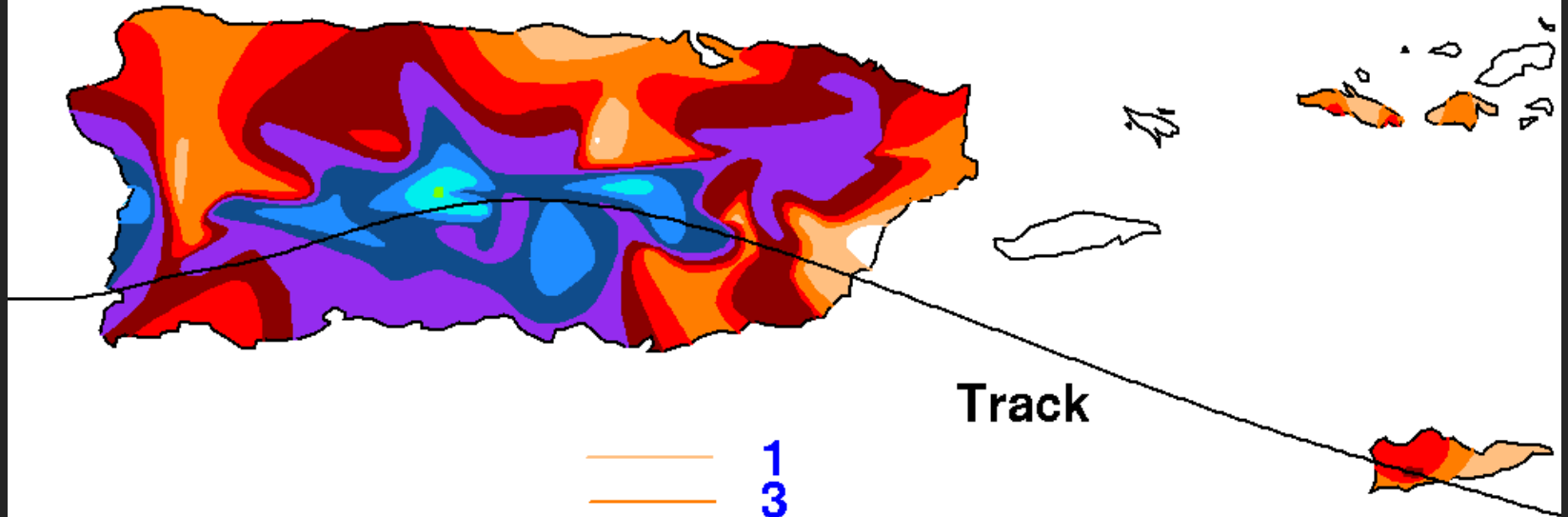
High Rainfall Amounts (at least seasonally)



EXPLANATION

Hurricanes and Typhoons – Large Volumes of Runoff

Hurricane Georges
September 19-23, 1998
148 sites



Storm Total
24 Hour

Maxima:
30.51" Jayuya, PR
23.30" Cacaos/Orocovis, PR

Limited often stressed sources of drinking water



Coastal Development Pressure



Key land based sources of pollution

Pollutant	Impacts	Sources
Nitrogen	Eutrophication, algae growth, enrichment beyond tolerance of coral reefs.	Wastewater, fertilizers, stormwater runoff, atmospheric deposition
Sediment	Deposition on reefs, effects on sediment intolerant reef organisms, sediment particles leading to water temperature warming, pollutants attached to sediment particles.	Soil erosion, channel erosion, poor erosion and sediment control practices, African dust
Bacteria	Health related illnesses due to water contact, swimming, beach closures, source of pathogens that effect coral reefs	Untreated wastewater, sewage overflows, stormwater runoff, pet waste, animal waste, wildlife
PAHs	Toxicity to coral reefs	Stormwater runoff of automobile related contaminants, boat engine discharge particularly 2-stroke engines
DDT, PCBs	Toxicity to coral reefs	Legacy contaminants, erosion of legacy sediments

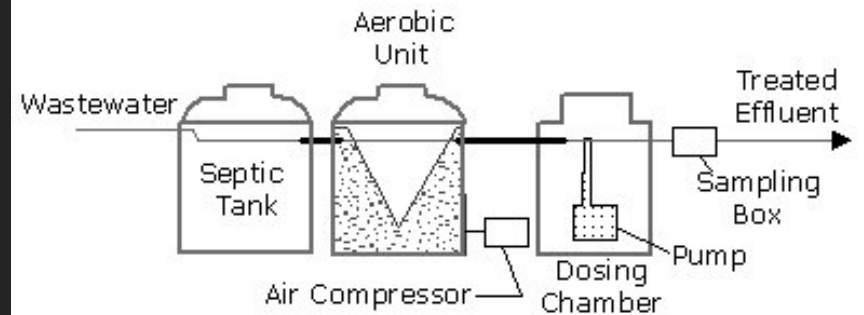
Nitrogen

Source: Wastewater



Solution: Improved treatment

Treatment wetlands



Denitrifying septics

Sediment from Bare soils

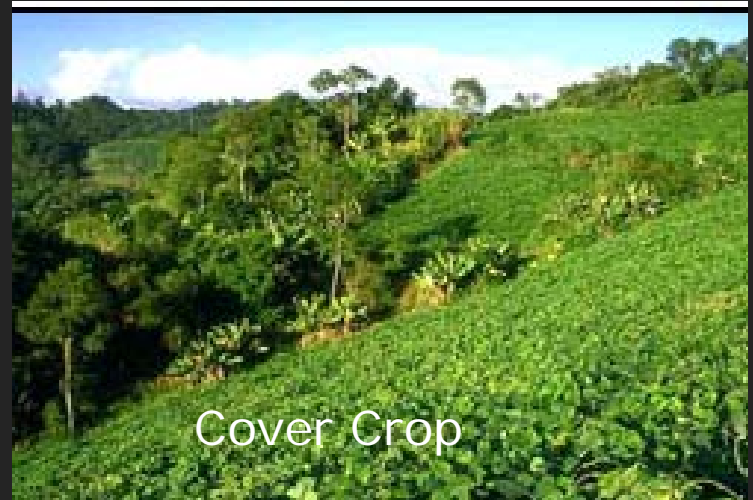
Source: Construction Sites



Sediment from Bare soils

Solutions:

Source: Agricultural Clearing



Cover Crop



Shade grown coffee

Sediment from Channel Erosion



Solutions:



Bank stabilization



Re-establishing native riparian forest

Stormwater Runoff

Solutions:

Source:



Stormwater Runoff

Source:



Dirt Roads/Roads on slopes

Solutions:



Flow diffuser

Sediment traps, water bars,
check dams

Stormwater Hotspots?

Transportation-Related Operations
Commercial Operations
Industrial Operations
Institutional Operations
Municipal Operations



Produce **higher levels of pollutants**

AND / OR

Present **higher potential risk for spills, leaks, or illicit discharges**



Guide to Stormwater Hotspots

Commercial

- Gas stations
- Automotive repair shops
- Car washes
- Nurseries
- Dry cleaners
- Restaurants
- Hotels



Municipal

- Public Works Yards
- Vehicle/Equipment Storage and Maintenance Yards
- Water/Wastewater Treatment Facilities
- Landfills
- Solid Waste Handling and Transfer Facilities
- Composting Facilities
- Public Buildings (e.g. Schools, Libraries, Police and Fire Departments)
- Public Parks
- Public Golf Courses
- Public Swimming Pools





Solution: Dedicated wash area



Solution: BMPs to harvest or treat runoff



Partial Solution: containment berm, but needs to better contain...





Solution: secondary containment



Secondary containment



Partial solution: provide instructional signage and mechanism for proper management



PLEASE PICK UP MY POOP.

Know what's grosser than picking up dog poop?

Stepping in it. Know what's even grosser than that? Swimming in, fishing from, and drinking water that has dog poop in it! Please pick up after your pooch.

Cleaning up pet waste is good for your health and the environment! Seriously. Pet waste left on the ground gets washed into storm drains and drainage ditches that flow to your local waterway...without being treated! Bacteria, parasites and viruses found in pet waste can be harmful to water quality and human health. Not only is picking up after your pooch the neighborly thing to do, it's the healthy thing to do... for you and the environment!

N.C. Department of Environment and Natural Resources
This sign was funded through the Clean Water Act's Section 319 Grant Program.

Thank you! 

For more information, please visit www.eenorthcarolina.org

The Key is to thoroughly assess your watershed

- Determine Sources
- Restoration Strategies
- Costs and Benefits

