

FLOOD WATCH!

YOU KNOW WHAT THAT MEANS:

Brown Water:

Sometimes smelly, in your favorite surfing, fishing, paddling, diving or hanging out spot. But the muddy water is also causing other problems to our coral reef ecosystems. When it rains, the water flows across farm fields, city roads, parking lots, and construction sites, washing soil particles, pesticides, pet and livestock waste, oil, plastic bags, and other pollutants into our streams and the ocean. This is known as nonpoint source runoff pollution because these pollutants aren't coming from an identifiable discharge point, like a pipe from a wastewater treatment plant.

Sediments:

When you think of sediments, you may think of the soil in your backyard. But sediments can also include flakes of metal and small pieces of broken pavement off the street, or soil particles from construction sites, bare stream banks, or land that has been heavily grazed by cattle, sheep, goats and pigs.

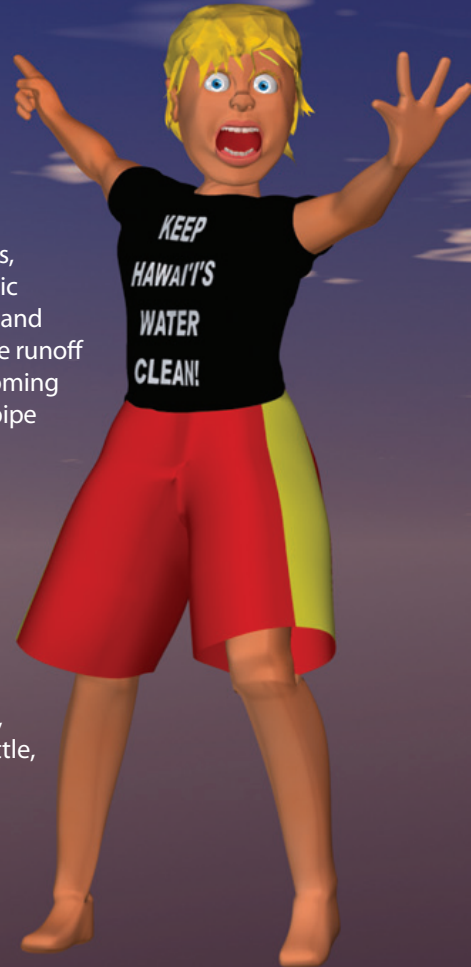
Nutrients:

Plants and animals need a certain amount of nutrients, including nitrogen, phosphorus and chlorophyll. But too much of these nutrients in the water can damage the habitat that fish, corals and other animals rely on. We are dumping too many nutrients into the environment, through improperly maintained cesspools and septic systems, and too much fertilizer and pesticides used on farms and at home.

Too Much Stress!

Combine sediments, nutrients, and chemicals with other stressors such as oil, personal pharmaceuticals, and climate change, and we add another level of water quality impacts to be concerned about. Oil in the marine environment can damage the reproductive system of corals. Personal pharmaceuticals, such as lotions, antibiotics, birth control pills and sunscreen are of increasing concern to EPA; some drugs, used for nausea and motion sickness are toxic to marine life.

KEEP HAWAII'S WATER CLEAN!



CAPTAIN CORAL

Says:

You don't have to have super powers to be a super hero for our environment! Take on one task at a time –

Here are some examples:

- Don't dump anything down a storm drain. It ends up in our streams and our ocean.
- Wash your car on a lawn rather than the hard driveway. Use a nozzle to save water; the less water you use, the less the wasted water ends up in our streams and ocean!
- Use phosphorus-less laundry and dishwashing soap.
- When you fertilize your lawn, you fertilize the ocean. Too much fertilizer, applied right before a storm, can end up in the ocean, rather than in your lawn!
- Pick up your pet waste!
- Talk to your legislator about getting better wastewater treatment systems, increasing fines for illegal construction in or near streams, and increasing setbacks for development near streams and coastal areas.
- Get involved in volunteer monitoring! We need more hands protecting our waters.

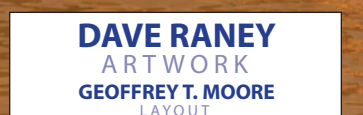


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Polluted Runoff:
What You can do to Protect the Ocean



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POLLUTED RUNOFF: SOURCES AND SOLUTIONS

BAD CAR WASH



Soap for washing your car may contain phosphates, which are nutrients. Excessive nutrients can accelerate algae growth, especially alien algae, which can smother corals.

GOOD CAR WASH



Wash your car with soaps containing no phosphates on a lawn rather than the hard driveway. Use a nozzle to save water; the less water you use, the less wasted water ends up in our ocean!

FERAL ANIMALS

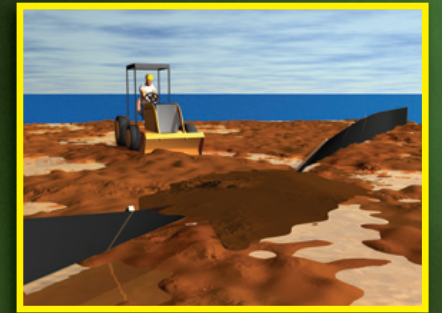


Feral animals, such as pigs can contribute to the brown water caused by increasing sediment load in our waters. Through their furious digging for food, they create erosion by rooting up the plants that help to keep the soil in place.



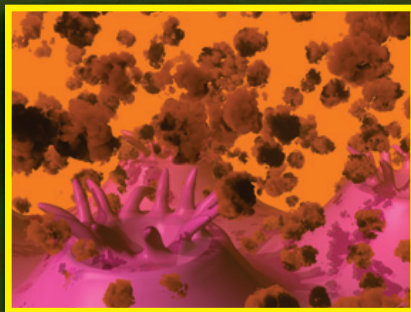
Drive your car less! Hard surface areas, known as "impervious pavement" such as roads and parking lots can collect brake pad metal and oil drippings over time. During a rainstorm, these pollutants are flushed out to our streams and ocean.

CONSTRUCTION



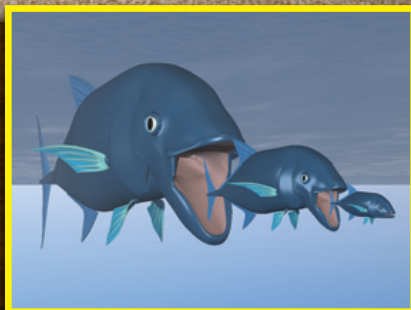
The sediments found in the streams and ocean can also come from poor management practices during construction of buildings.

SEDIMENT



Sediments cloud the water, making it more "turbid." This turbidity can block the sunlight the zooxanthellae in corals require to provide food for the corals. Sediments can also clog fish gills, and kill corals by burying them.

TOXIC FISH



Toxic materials, such as metals, pesticides and bacteria contaminate small organisms that larger fish feed on. Then even larger fish and marine mammals eat these small fish and the toxins can end up in their bodies (known as bioaccumulation). The toxins can affect their reproduction, cause birth defects and/or increase vulnerability to disease.

PET WASTE



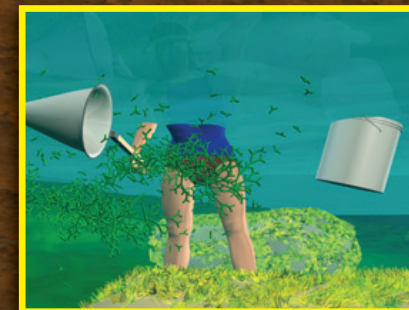
Pick up your pet waste! Dog feces contain a variety of different bacteria and other diseases, including E. Coli that are harmful to human health, and Vibrio, which can kill coral.

ALGAE GROWTH



Herbivorous fish such as uhu (parrotfish) can help control algae growth on corals, but efforts such as on Maui are needed to restore their populations in near shore waters.

INVASIVE ALGAE



Too many nutrients in the water can lead to excessive growth of algae, especially alien algae, which can smother corals.