



Stormwater 101 with Stormy the Fish

Stormwater Runoff, Pollution, and Flooding: How Residents Can Help

An Awareness Program for ALL Residents

INTRODUCTION and TABLE OF CONTENTS

Nobody sets out to intentionally cause pollution or flooding, but often we unintentionally do just that.

Through this interesting, easily read (mostly photos with 1-2 sentence answers!), and easy-to-understand Q & A slide program, Stormy the Fish provides thought-provoking reminders of how we all can help reduce flooding and help prevent polluting the waters our families rely on.

A slide count and approximate time count is provided for each section.

We hope that you find this program to be empowering and useful for your family!

Content (times per section are approximate):

- **Basics: (DON'T MISS THIS ONE!)** 21 slides; 5-7 minutes
- **Yard Waste:** 14 slides; 2-3 mins
- **Sediment:** 14 slides; 2-3 mins
- **Fertilizers:** 13 slides; 2-3 mins
- **Pesticides:** 14 slides; 2-3 mins
- **Vehicle Pollutants:** 20 slides; 3 mins
- **Litter:** 14 slides; 2 mins
- **Pet Waste:** 21 slides; 2-3 mins
- **Conclusion:** 1 slide, 1 minute
- **FOR THE FULL-CONTINUOUS PROGRAM:** 132 slides: approx 20 minutes (if new material to you)
- **flyer de impression AHTD – Aqua Limpia es importante para todos**

Updates, links, and additional information will be added periodically, so please check back often.

- ✓ Related Municipal codes for Conway (not all inclusive) are located at the end of each section. All Municipal Codes, ordinances, and resolutions for Conway, Arkansas, can be found online at www.municode.com/library/ar/conway/ or www.cityofconway.org.
- ✓ For full details on **Conway's Stormwater Management Ordinance (from 2-27-09)**, visit: [Stormwater http:// cityofconway.org/media/permits/O-09-13.pdf](http://cityofconway.org/media/permits/O-09-13.pdf)

Special Thanks to the City of Wilmington, NC Stormwater Services for their production, the fish logo, and facts in the original series.

With permission, Conway EcoFest has worked with leaders within the City of Conway (Arkansas) to modify this education program for our community (but much is very general information and is appropriate for any area).



Welcome to...

STORMWATER 101

The Basics with Stormy the Fish

What you do at your home can impact the quality of my home, even if you don't live near a lake/stream/ocean! Here's how.



Stormwater 101

The Basics

Q: What happens to **rainwater** when it hits the ground?

A: It will **evaporate**, soak into the ground, and/or become **stormwater runoff**.



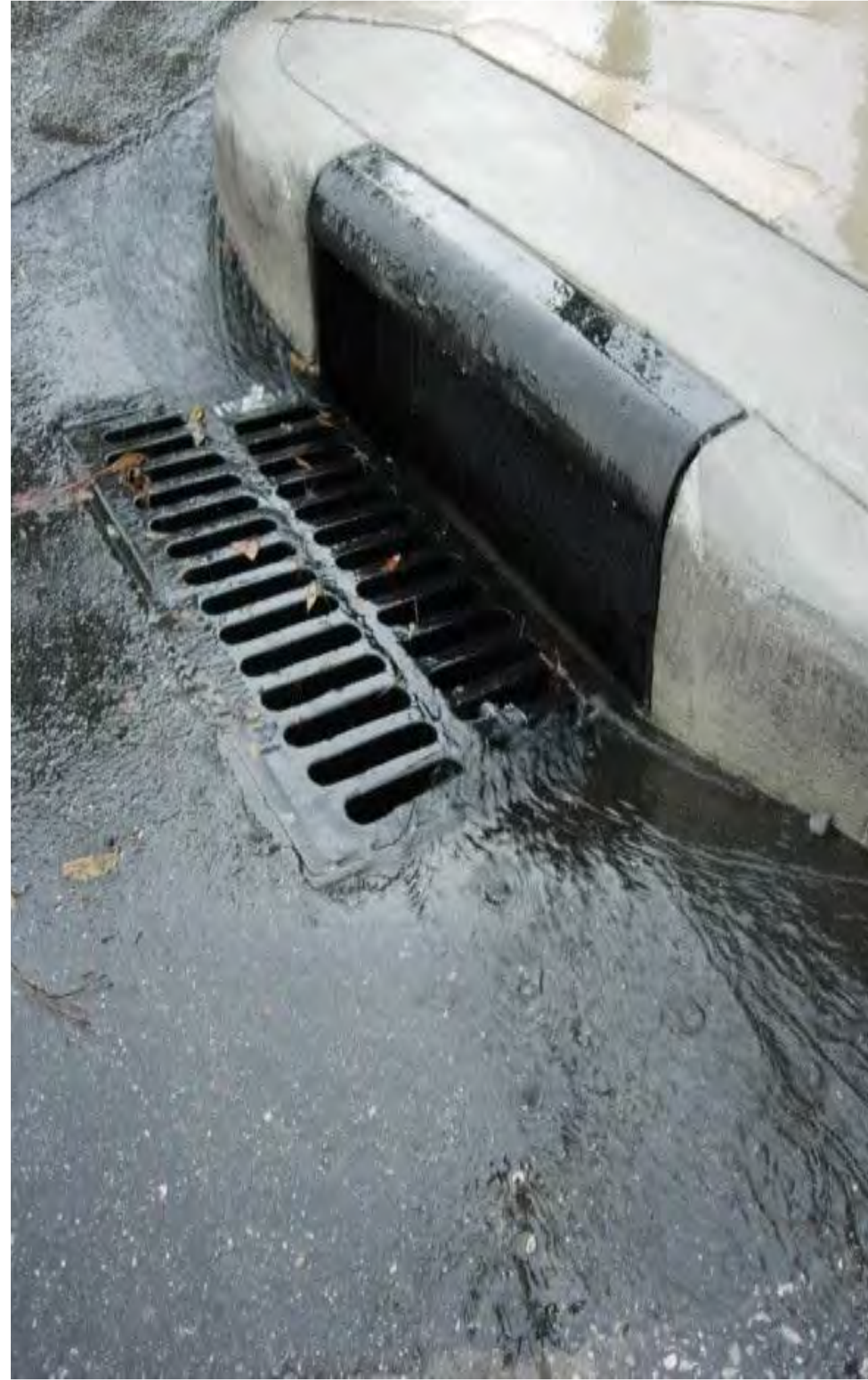


Stormwater 101

The Basics

Q: What is **stormwater runoff**?

A: Rainwater that washes over land, through the drainage system and into our waterways





Stormwater 101

The Basics

Q: What are the **two main** problems caused by stormwater runoff?

A: **Flooding** of streets and property, and **Pollution** carried into our waterways by stormwater runoff

Keep in mind that it doesn't take major floods to create pollution; even small to moderate rains can wash toxins into our waterways!





Stormwater 101

The Basics

Conway's population grew by 49.5% between 2000 and 2014

Q: What's the **connection** to **stormwater runoff**?

A: More development & impervious surfaces = more polluted runoff!





Stormwater 101

The Basics

Q: What is an **impervious surface**?

A: A hard surface that water can't soak into. Examples include rooftops, roads, and parking lots.

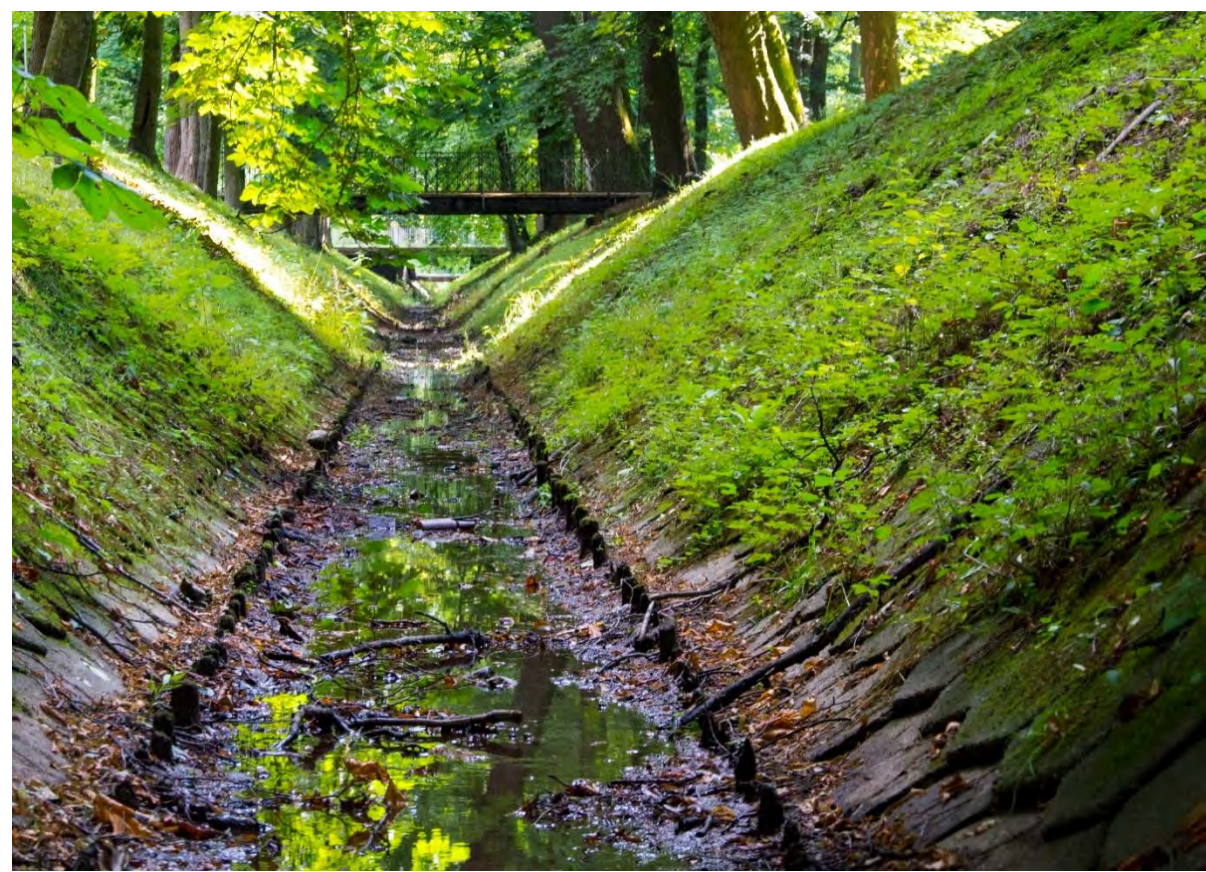


Stormwater 101

The Basics

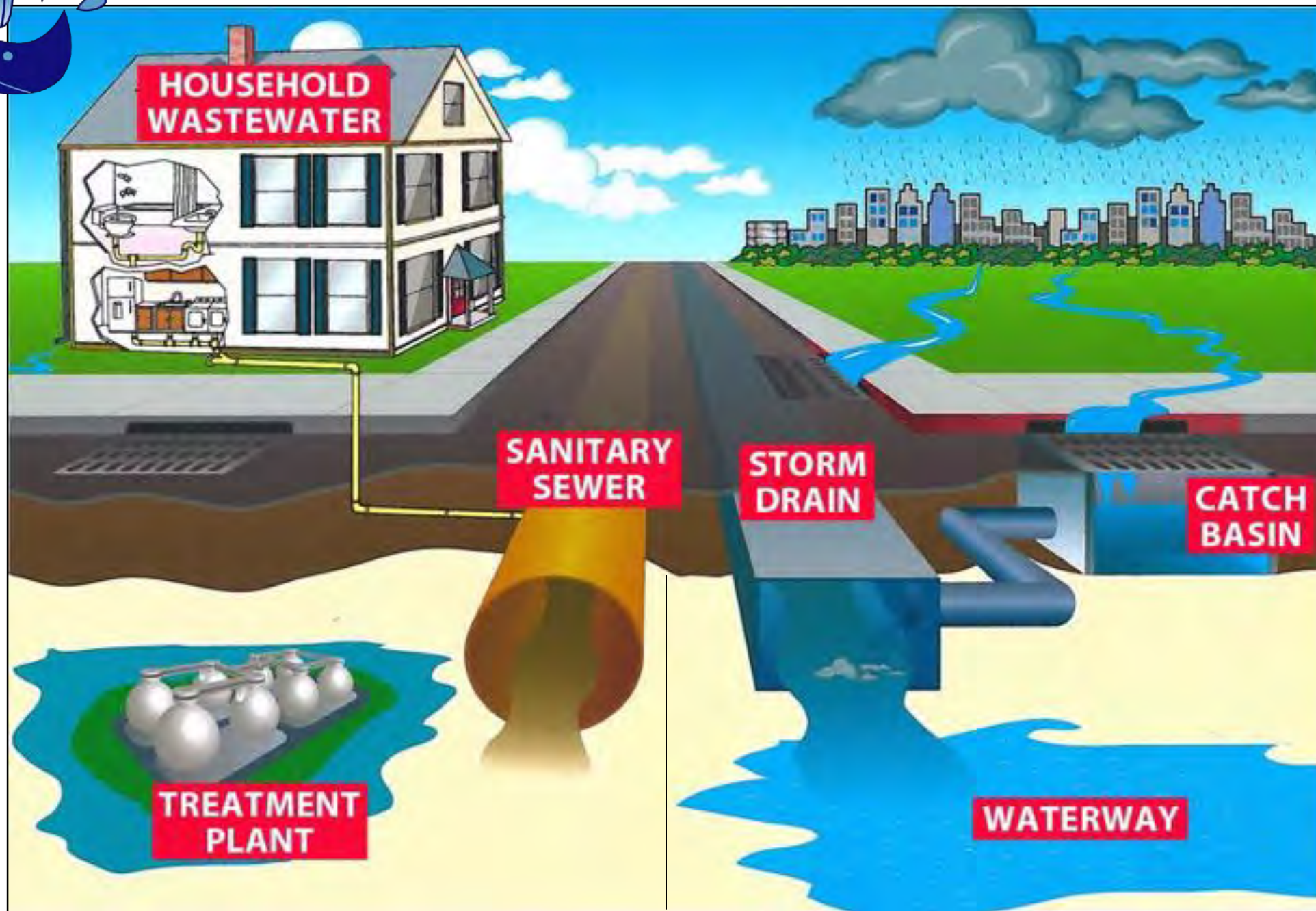
The storm drainage systems consists of:

- Storm Drains (*including curbs that lead to the drainage system*)
- Drainage Ditches
- Underground Pipes
- Retention Ponds
- Culverts
- Creeks/Streams
- Wetlands





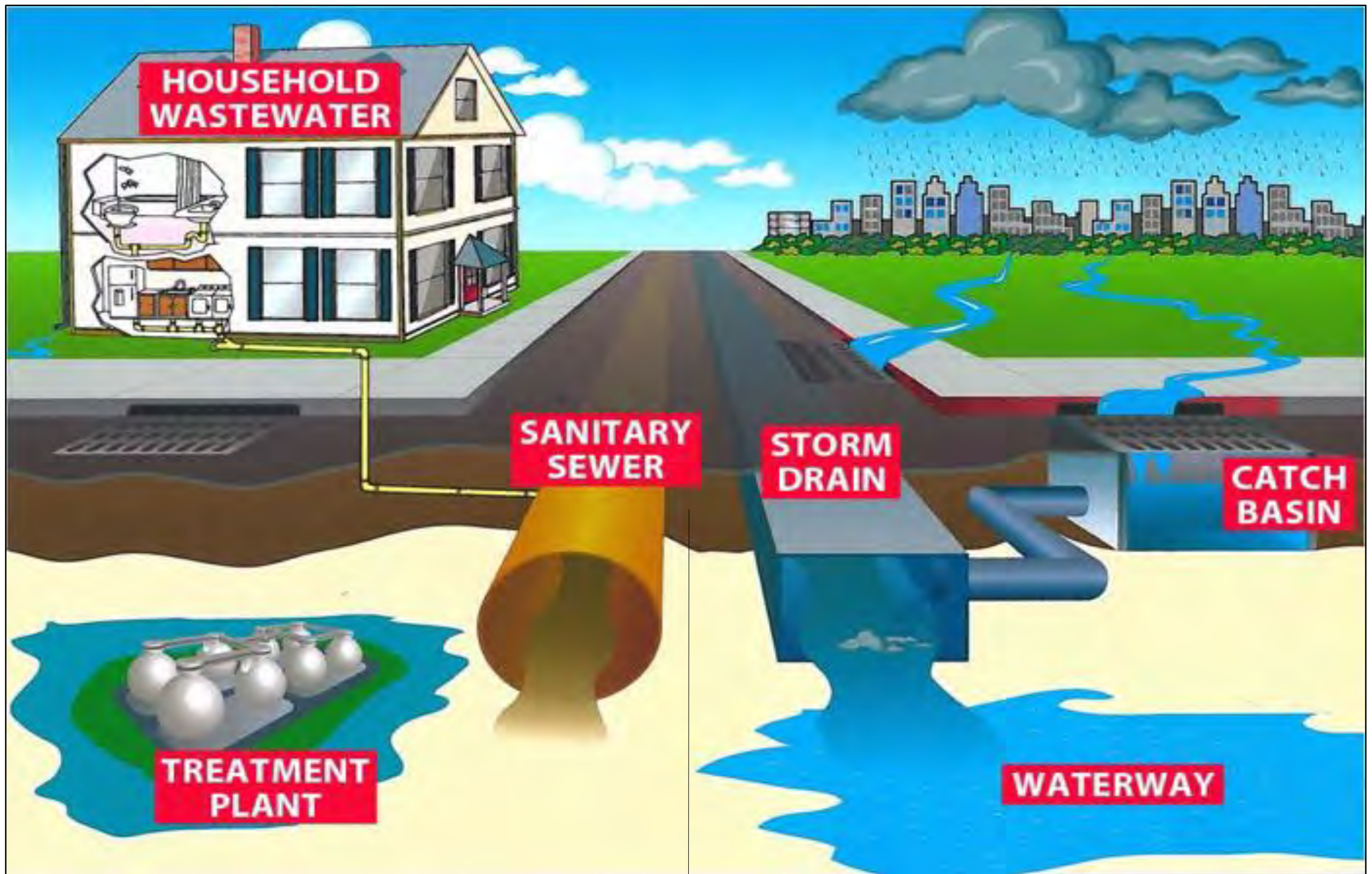
Stormwater 101 The Basics



http://www.bwsc.org/community/swpp/sw_main.asp

Q: Is there a **difference** between the **sanitary sewer** system and the **storm drainage** system?

A: YES! They are completely different systems.



The **sanitary sewer system** transports wastewater from houses and buildings to a wastewater treatment plant.

The **storm drainage system** collects and transports runoff from streets and property directly into waterways.



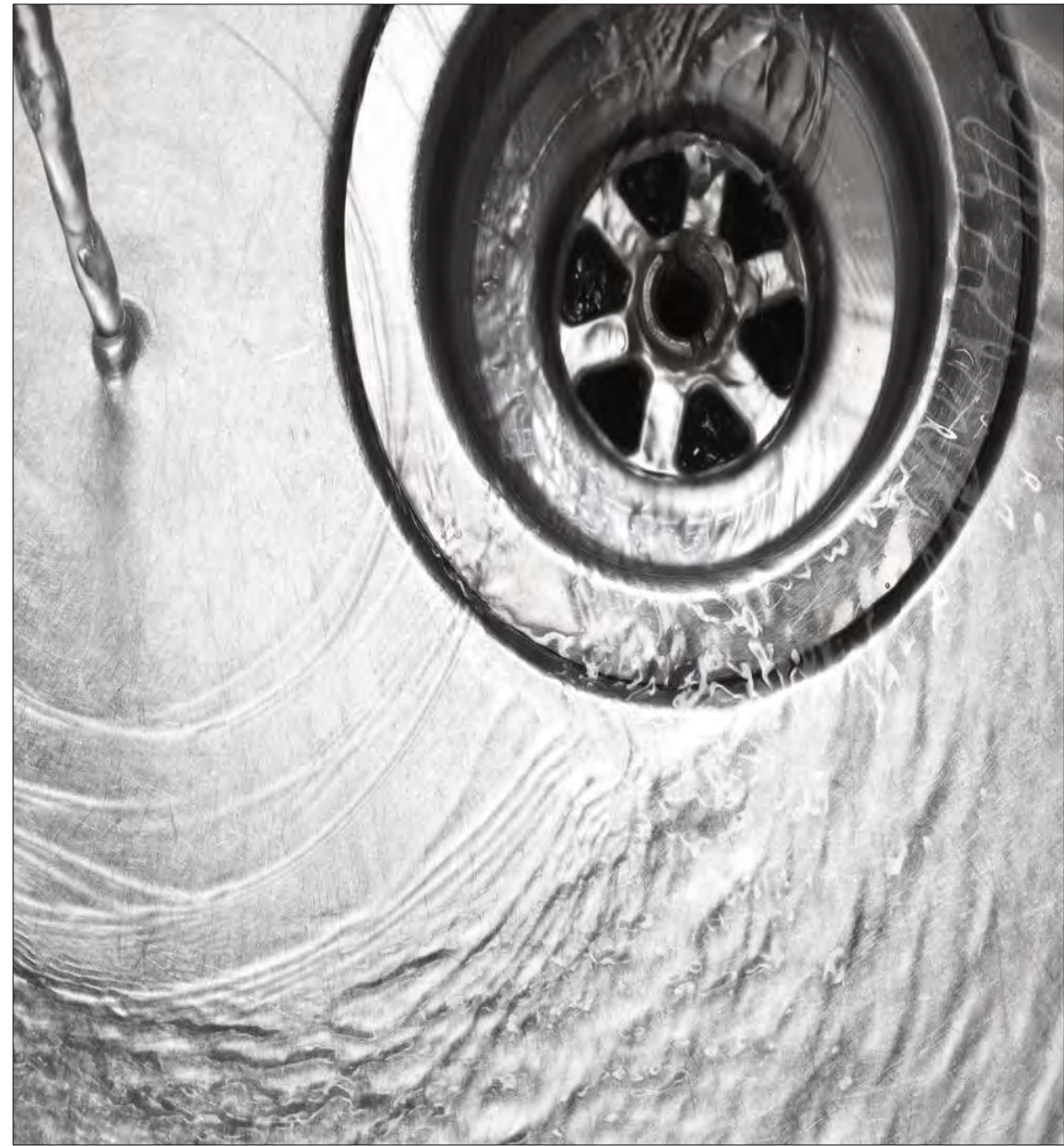
Stormwater 101

The Basics

Q: Does this mean that I can safely put anything down the sink or commode because it goes to the **sanitary sewer system**?

A: Definitely Not! Some items (such as grease, paints, or pharmaceuticals) can cause problems for all of us, including treatment plants, and make it more costly to you and for everyone.

For those within the Conway city limits, visit www.conwaycorp.com for more details. Others should check with their city/county utility companies for items to avoid in order to save your pipes and help save money!



To view tips about handling grease, and other items to avoid, visit:
<https://www.conwaycorp.com/services/water-wastewater>



Stormwater 101

The Basics

The Stormwater runoff in Faulkner and Conway Counties flows through the Drainage System and may flow into one or more of these drainage basins within our WATERSHED:

- Palarm Creek & Lake Conway
- Stone Dam & Tucker Creeks
- Brewer Lake (Conway County)
- Cadron Creek & Beaverfork Lake

These and others flow into the Arkansas River, and ultimately the Mississippi River and beyond.





Stormwater 101

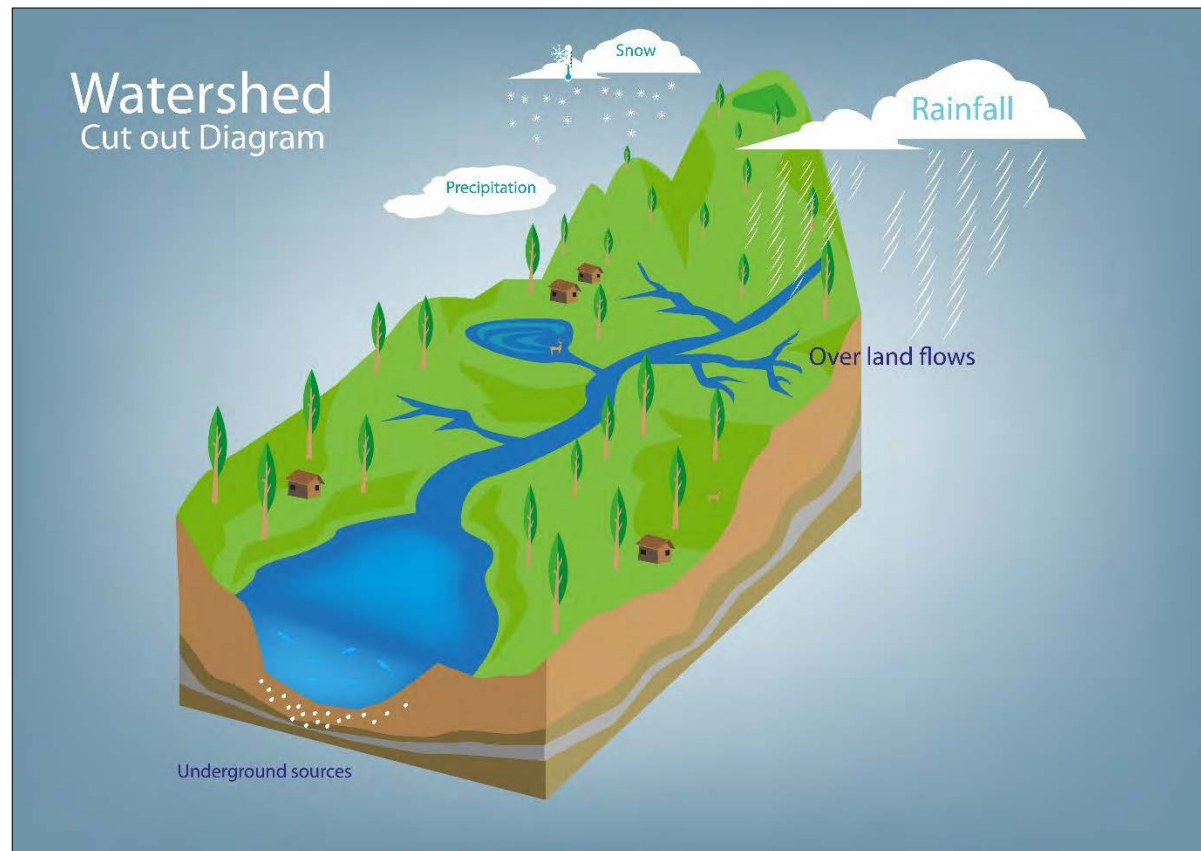
The Basics

Q: What is a watershed?

A: The area of land that drains runoff to a specific body of water such as a creek, lake, or river.



Watersheds don't know political boundaries; they are **naturally determined by the topography**, or the slope of the land.



Everyone lives
in a watershed

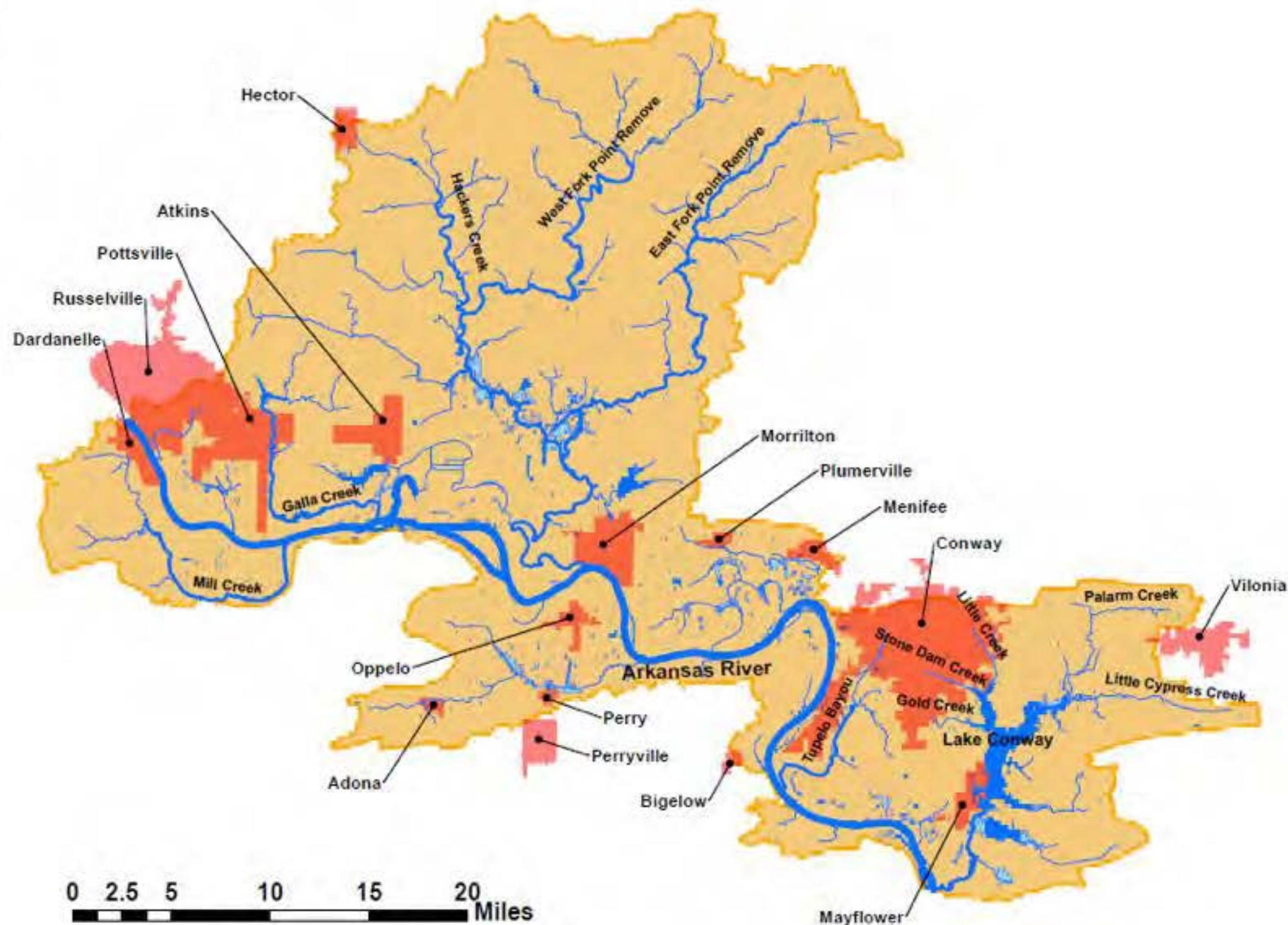


Stormwater 101

The Basics



- Cities
- Watershed Boundary
- Lakes
- Swamps
- Stream/River



For more information about [this watershed](https://cityofconway.org/pages/planning-development), visit cityofconway.org/pages/planning-development.

Contact Scott Grummer at (501) 450-6105, ext. 3723; or for general watershed info., call Kami, 501 329-8344 at the Faulkner Co. Cooperative Extension Office

Lake Conway Point Remove Watershed

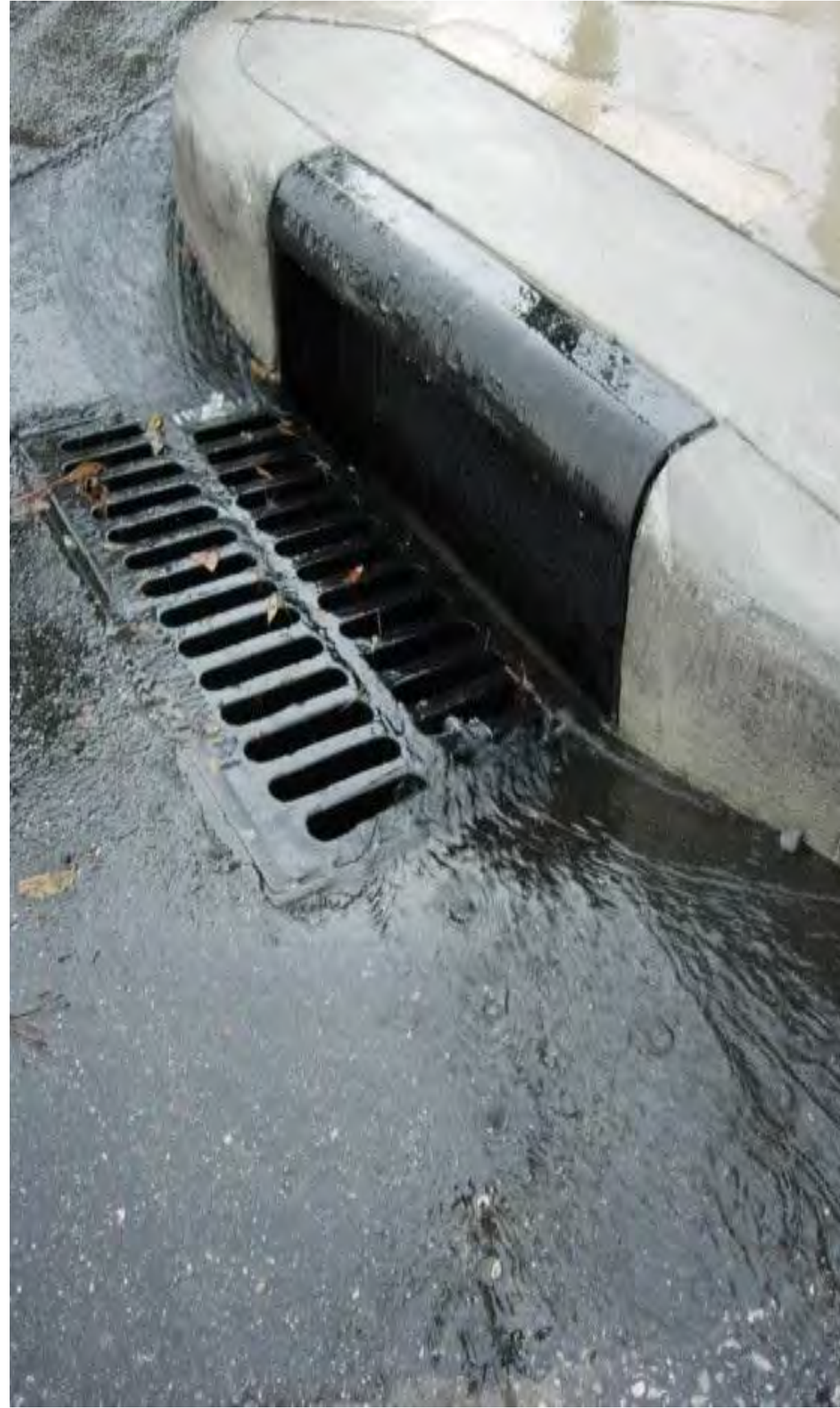


Stormwater 101

The Basics

Q: Again, what are the **two main** problems caused by stormwater runoff?

A: **Flooding** of streets and property, and **Pollution** carried into our waterways by stormwater runoff





Stormwater 101

The Basics

Flooding can occur when litter and yard waste clog storm drains and ditches.

Polluted runoff DOES NOT go to a treatment plant!!!





Stormwater 101

The Basics

Q: What kind of **pollution** does runoff carry into our waterways (*keep in mind that it is not always visible like in this photo!*)?

A:

- Pet Waste
- Yard Debris
- Litter
- Sediment
- Fertilizer
- Pesticides
- Carwash Soaps
- Auto Fluids





Stormwater 101

The Basics

Q: How does polluted runoff impact our waterways?
Here are just a few ways:

Fish Kills	Algal Blooms	Foul Odors
Habitat Destruction	Unsightly Appearance	Aquatic Weeds
Waters close to shell and other fishing	Contaminated Drinking Water	Recreation/ Economic Impacts



Stormwater 101

The Basics

Stormwater runoff pollution affects ALL of our waterways and can impact the health of our community!

To learn more and view a current list of our local waterways that may not meet water quality standards and are impaired by pollution, visit

<https://www.adeg.state.ar.us/water/planning/integrated/303d/>



Stormwater 101

The Basics

Remember: **YOU** are the solution
to stormwater pollution!





Stormwater 101

The Basics

For more specifics on **Stormwater guidelines within the city of Conway**,

visit [http:// cityofconway.org/media/permits/O-09-13.pdf](http://cityofconway.org/media/permits/O-09-13.pdf), to help you learn how to protect our waterways.

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(For stormwater issues within the
Conway city limits)



Welcome to...

STORMWATER 101

Yard Waste with Stormy the Fish

What you do at your home can impact the quality of my home, even if you don't live near a lake/stream/ocean! Here's how.



Stormwater 101

Yard waste

Q: What is **yard waste**?

A: Yard waste consists of **organic matter** such as grass clippings, leaves, and branches.





Stormwater 101

Yard waste

Q: What is the problem with **yard waste**?

A: It **clogs the drainage system** causing **flooding** and leads to **water pollution** in waterways.



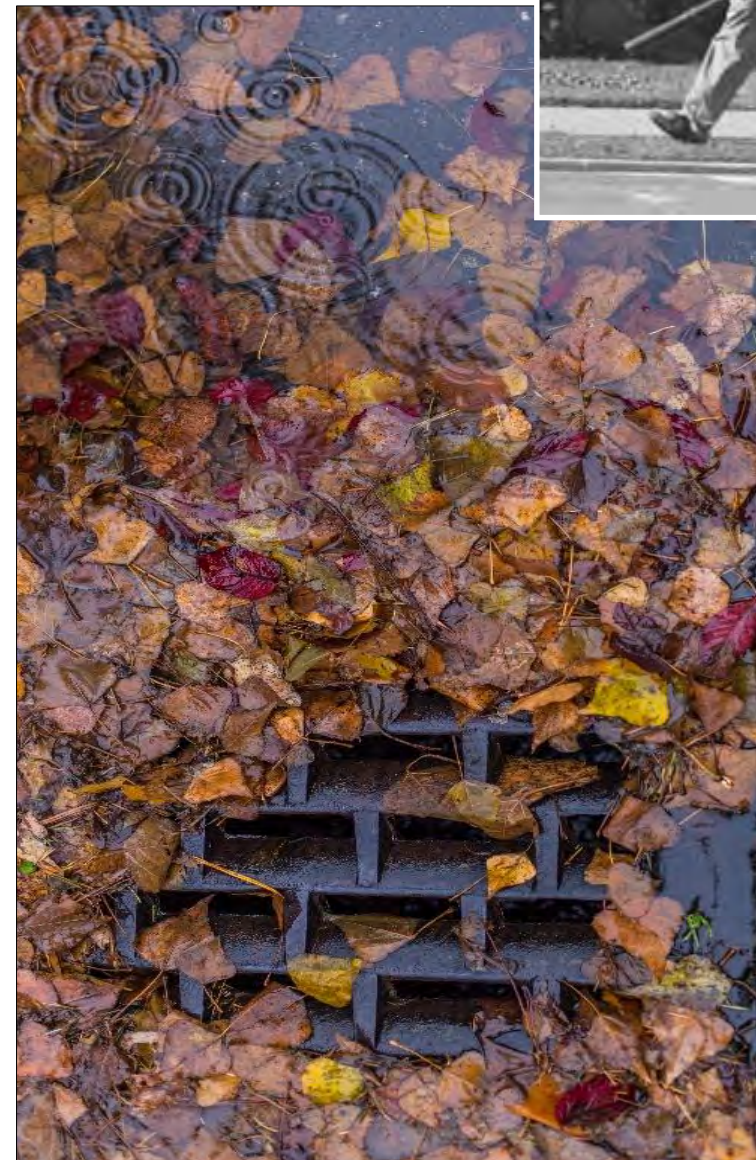


Stormwater 101

Yard waste

Q: How does **yard waste** end up in our waterways?

A: It is **unlawfully blown, swept, raked, or dumped into streets, storm drains, or ditches**, which drain directly into our waterways.





Stormwater 101

Yard waste

Q: How does yard waste contribute to **flooding**?

A: **Yard waste clogs the storm drainage system** and causes stormwater to back up onto streets and property.





Stormwater 101

Yard waste

Q: How does **yard waste pollute** our waterways?

A: Excess **nutrients from yard waste cause** aquatic weed and algae growth that leads to **fish kills and habitat destruction**.





Stormwater 101

Yard waste

Q: How can you keep yard waste out of our waterways?

It is simple really!
The following tips should help you:





Stormwater 101

Yard waste

A1. **Compost** yard waste, grass clippings, and leaves into a mulch for use in landscape beds or as a natural soil conditioner;

IMPORTANT:

When composting, be sure to use a barrier of some sort if necessary to prevent loose materials from washing into creeks/ditches or other drainage systems.





Stormwater 101

Yard waste

A2. **Sweep up and collect** all yard waste from streets and sidewalks;

Do not blow it into the street or storm drain!

The cumulative impact of even a little bit from a lot of homes can make a big difference!





Stormwater 101

Yard waste

A3. Grasscycle!

Leave grass clippings and leaves on the lawn. They act as a natural fertilizer and soil conditioner.





Stormwater 101

Yard waste

City of Conway residents:

If you need your yard waste picked up, please place leaves and grass clippings in paper **yard waste bags** OR **reusable containers**; the city will compost these materials along with brush and limbs.

VISIT: www.conwaysanitation.org for full yard waste collection guidelines.





Stormwater 101

Yard waste

Conway residents (as well as residents/businesses in most cities), please remember that it is **unlawful to place leaves, grass clippings, trash, or debris of any kind in streams, storm drains, ditches, and streets.**

This will cause obstruction to the storm drainage system, resulting in costly flooding for many.



DID YOU KNOW that even those communities that have (the very costly) leaf vacuums often require that leaves be piled three feet from the curb to avoid them blowing back into the street, clogging storm drains, and causing flooding? Check with your community to learn about specific yard waste requirements.



Stormwater 101

Yard waste

Remember: **YOU** are the solution to stormwater pollution!





Stormwater 101

Yard waste

For more specifics on **Stormwater guidelines within the city of Conway**,

visit [http:// cityofconway.org/media/permits/O-09-13.pdf](http://cityofconway.org/media/permits/O-09-13.pdf), to help you learn how to protect our waterways.

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Codes: 5.08.08; 5.08.12; 5.09.16.C8; 5.04.23

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Welcome to...

STORMWATER 101

Sediment with Stormy the Fish

What you do at your home can impact the quality of my home, even if you don't live near a lake/stream/ocean! Here's how.



Stormwater 101

Sediment

Q: What is **sediment**?

A: Sediment is made up of **particles of soil** that can wash off land and into our waterways.





Stormwater 101

Sediment

Q: What are **sources** of **sediment** pollution?

A: Sources include:

- Bare lawn areas
- Eroding stream banks
- Construction sites with no erosion control





Stormwater 101

Sediment

Q: What is the **problem with sediment**?

A: Sediment **chokes waterways**, leading to cloudy water, **fish kills**, **habitat loss**, and **flooding**.





Stormwater 101

Sediment

Erosion is a natural process; however, development can accelerate it, allowing more sediment to enter our waterways.

Did you know?

Sediment is the #1 water pollutant in Arkansas and around most of the country.

Both **small yard projects** and large projects **add to this problem!**





Stormwater 101

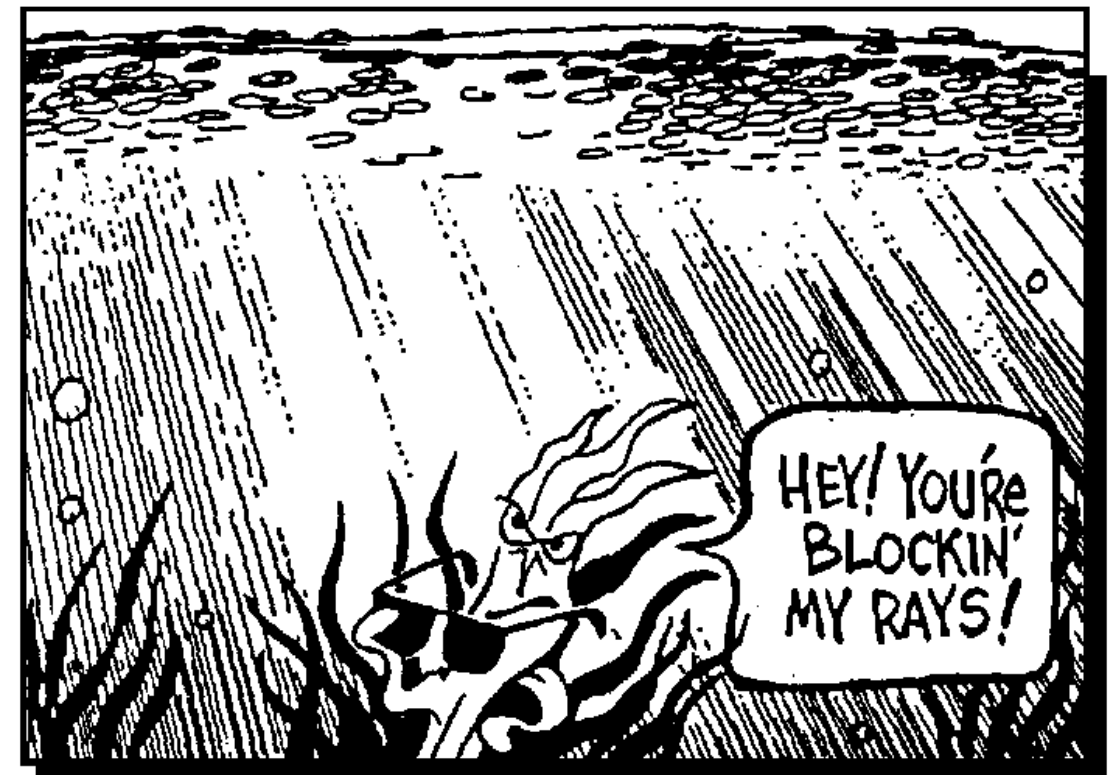
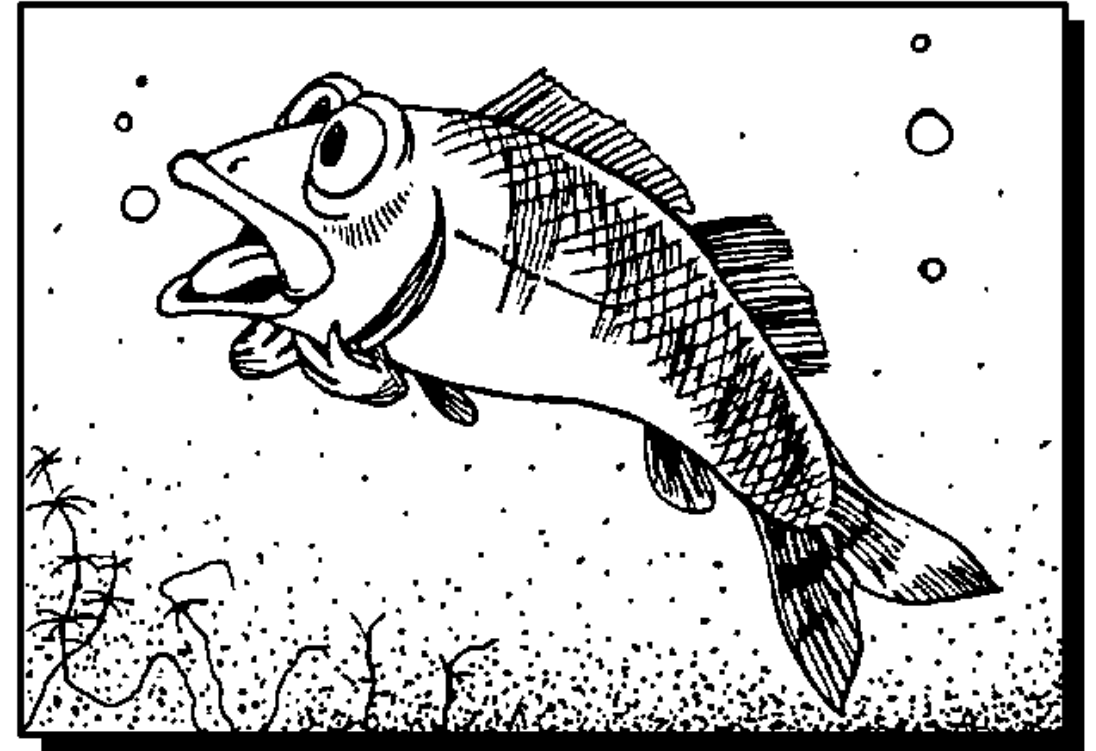
Sediment

Q: How does **sediment impact** aquatic habitats?

A1: Suspended sediment **clogs fish gills and smothers fish eggs**, and

A2: **sunlight** is not able to penetrate through cloudy water.

Bottom-dwelling plants and critters depend on sunlight for survival.





Stormwater 101

Sediment

Q: How does sediment lead to **flooding**?

A: Sediment **clogs the storm drainage** system causing stormwater to back up and **flood streets, homes, and property**.





Stormwater 101

Sediment



Q: How can you **prevent sediment** from entering our waterways?

A: It's simple really.
The following tips should help:



Stormwater 101

Sediment

There are many ways to prevent sediment from entering our waterways, including:

A1: Collect sediment off driveways, streets, and other hard surfaces; **do not hose, sweep, or blow it into the street;**





Stormwater 101

Sediment

A2: **Follow all construction site laws** and practices;



Good Litter and Erosion Control





Stormwater 101

Sediment

A3: **Plant vegetated buffers** along waterway. Buffers hold soil in place, reduce erosion, filter pollutants, and provide habitat;

A4: **Plant groundcover and native plants** on your property to reduce erosion, anchor soil in place, and filter pollutants from runoff; and





Stormwater 101

Sediment

A5: **Re-seed bare lawn** areas and add mulch to exposed soil in gardens or landscape beds.





Stormwater 101

Sediment

Remember: **YOU** are the solution to stormwater pollution!





Stormwater 101

Sediment

For more specifics on **Stormwater guidelines within the city of Conway**,

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Codes: 5.08.08; 5.08.12; 5.04.23A-D; 5.09.11

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Welcome to...

STORMWATER 101

Fertilizers with Stormy the Fish

What you do at your home can impact the quality of my home, even if you don't live near a lake/stream/ocean! Here's how.



Stormwater 101

Fertilizers

Q: What is the problem with **fertilizer**?

A: Improperly applying fertilizer or applying too much **causes nutrient pollution** in our waterways.





Stormwater 101

Fertilizers

Q: What is **nutrient pollution**?

A1: **Nutrients in fertilizer** (nitrogen and phosphorous) can cause aquatic weed growth and algal blooms in water when used improperly.





Stormwater 101

Fertilizers

A2: Excessive aquatic weeds and algal blooms **take oxygen out of the water**,

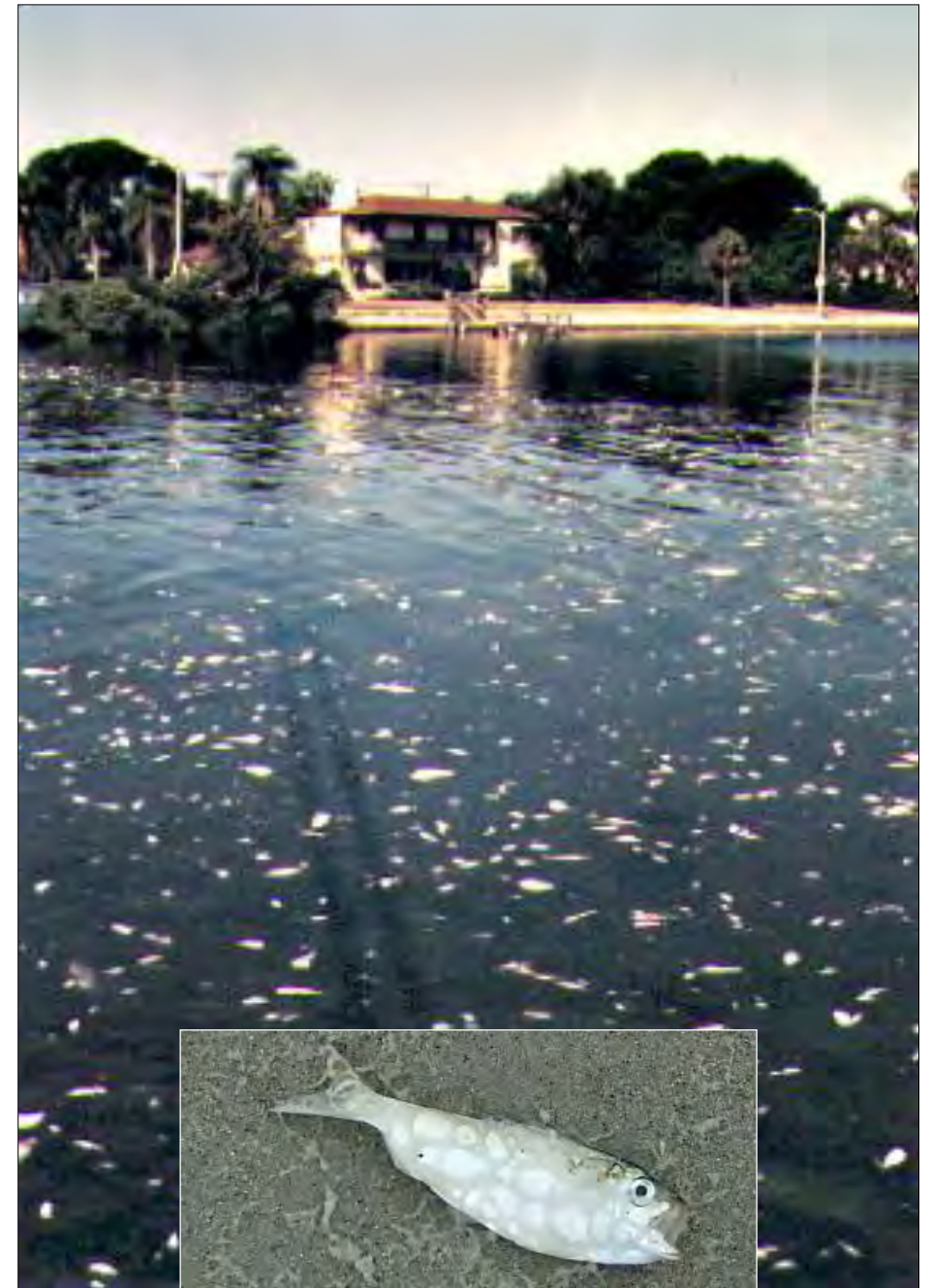




Stormwater 101

Fertilizers

which **suffocates fish** and other aquatic organisms that need oxygen to survive.





Stormwater 101

Fertilizers

These are examples of the types of waterways that have seen algal blooms, low oxygen levels, and fish kills in the past.





Stormwater 101

Fertilizers

Q: How can you help **keep fertilizer out of our waterways?**

It is very simple!

The following tips can save you time and money, too:

A1: **Grasscycle!**

Leave grass clippings and leaves on the lawn. They **act as a natural fertilizer** and soil conditioner;





Stormwater 101

Fertilizers

A2: Get a **FREE soil test!**

Save time and \$\$\$ by learning the exact nutrients and application rates for your lawn.

County Extension offices often will provide free soils tests. Call your local office for details.

In Faulkner County, call (501) 329-8344 for details on how to prepare and where to take your soil samples





Stormwater 101

Fertilizers

A3: Use an environmentally-friendlier alternative, like **organic fertilizer**;





Stormwater 101

Fertilizers

A4: When applying fertilizer, **always follow the label directions and apply the correct type** and amount for your lawn (more is not better!);





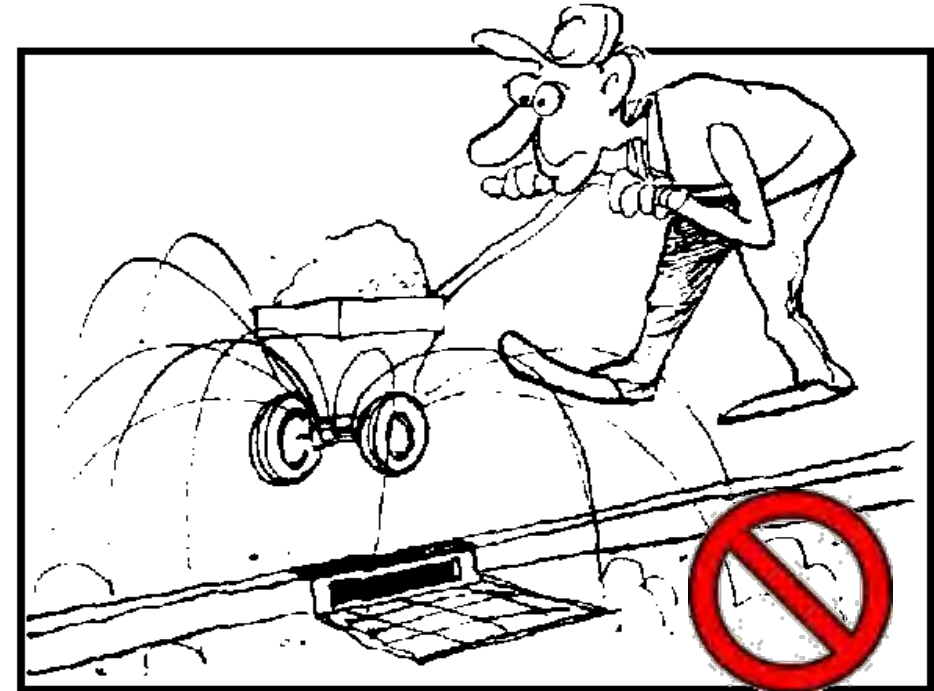
Stormwater 101

Fertilizers

A5: **Never fertilize just before it rains.** It will just wash away;



A6: Keep **fertilizer off the street, sidewalk, and driveway.** Don't let it wash away.





Stormwater 101

Fertilizers

Remember: **YOU** are the solution to stormwater pollution!





Stormwater 101

Fertilizers

For more specifics on **Stormwater guidelines within the city of Conway**,

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Welcome to...

STORMWATER 101

Pesticides with Stormy the Fish

What you do at your home can impact the quality of my home, even if you don't live near a lake/stream/ocean! Here's how.



Stormwater 101

Pesticides

Q: What are **pesticides**?

A: Chemicals known as **insecticides**, **herbicides**, and **fungicides** used to kill insects, weeds, and fungi.





Stormwater 101

Pesticides

Q: What is the problem with **pesticides**?

A1: Stormwater runoff can **wash** these chemicals **into our waterways** when used improperly.





Stormwater 101

Pesticides

A2: These chemicals are **poisonous** and pose a **danger to** humans, animals, birds, plants, and beneficial insects.





Stormwater 101

Pesticides

Q: Do pesticides only affect the “pests” they are meant for?

A1: No! Quite **often, they harm birds, insects, and other animals** that actually help keep unwanted pests in check; and

A2: **improperly applied pesticides** can make their way into waterways and impact the entire food chain.





Stormwater 101

Pesticides

Q: How can you help **keep pesticides out of our waterways?**

A1: Use **pesticides as a last resort** and use the following tips as a guide:





Stormwater 101

Pesticides

A2: Landscape with **native plants**. They are pest-resistant and disease-resistant, and usually don't need pesticides;





Stormwater 101

Pesticides

A3: Weed by hand or use **natural predators** like **ladybugs** to control pests naturally;





Stormwater 101

Pesticides

A4: If you must use pesticides, **be sure to follow the directions on the label;**

(More is not necessarily better; you can only kill that pest one time, and weeds can only suck up so much at one time!! The excess will likely run off into various waterways).





Stormwater 101

Pesticides

A5: **Spot treat!**

Don't spray the entire landscape if only one plant needs treatment; and





Stormwater 101

Pesticides

A6: **Never apply** pesticides just **before it rains**. They will just wash away.



Flows into RIVERS and other bodies of water





Stormwater 101

Pesticides

Use of **disease-resistant/ drought-tolerant plants, and native plants** will reduce your need for harsh chemicals, encourage butterflies, and more!



Photo by Jimmy Fielder



Photo by Debbie Howell

Faulkner County Master Gardeners and their partners developed the [Legacy Garden](#) at the former Faulkner County Natural Resource Center building, 110 South Amity Rd. in Conway.

These labeled beds can help you visualize and plan for a naturally maintained yard and garden.

The gardens have great information (**with maps you can take home**), and examples of plant beds for all types of conditions (the building is now part of Antioch Church, but the gardens are still available for public viewing and education at any time).





Stormwater 101

Pesticides

Remember: **YOU** are the solution
to stormwater pollution!





Stormwater 101

Pesticides

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STORMWATER 101

Vehicle Pollution with Stormy the Fish

What you do at your home can impact the quality of my home, even if you don't live near a lake/stream/ocean! Here's how.

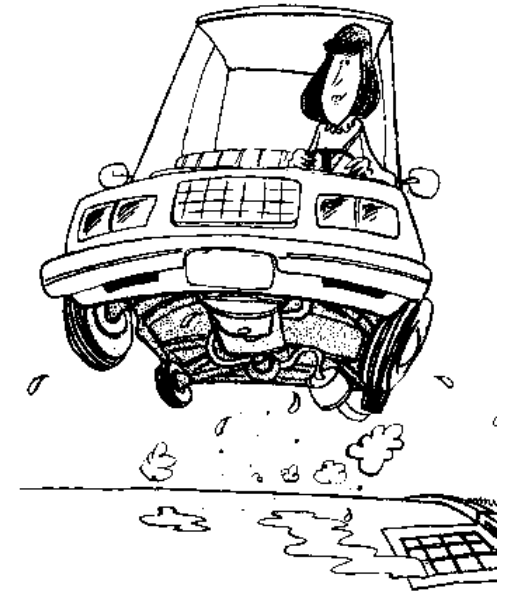


Stormwater 101

Vehicle Pollution

Q: What is the problem with **vehicles**?

A1: Pollution from vehicles **ends up in our waterways.**





Stormwater 101

Vehicle Pollution

A2: More specifically, motor oil, antifreeze, gasoline, brake dust, tire bits, car wash soap, and grime are all washed into our waterways.





Stormwater 101

Vehicle Pollution

Q: How does **washing your car** impact our waterways?

A1: Soap and dirty water can't soak into the driveway, so they **flow untreated into the storm drainage system** and eventually into our waterways;

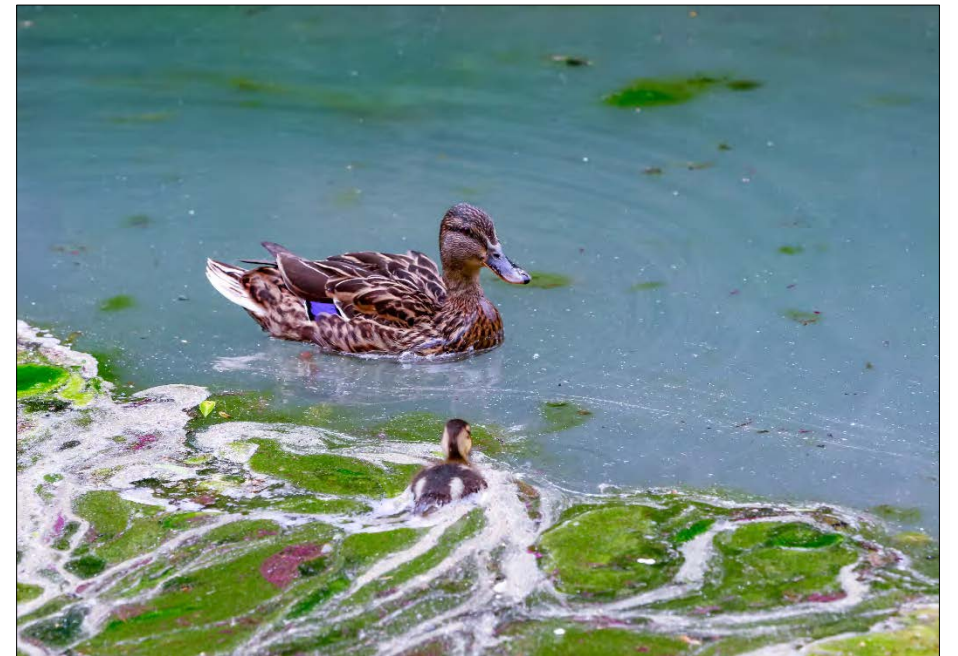




Stormwater 101

Vehicle Pollution

A2: Carwash **soaps threaten aquatic habitat** and the **entire food chain**.





Stormwater 101

Vehicle Pollution

A3: Soaps destroy the **protective coating on fish**, making them more susceptible to bacteria and parasites.

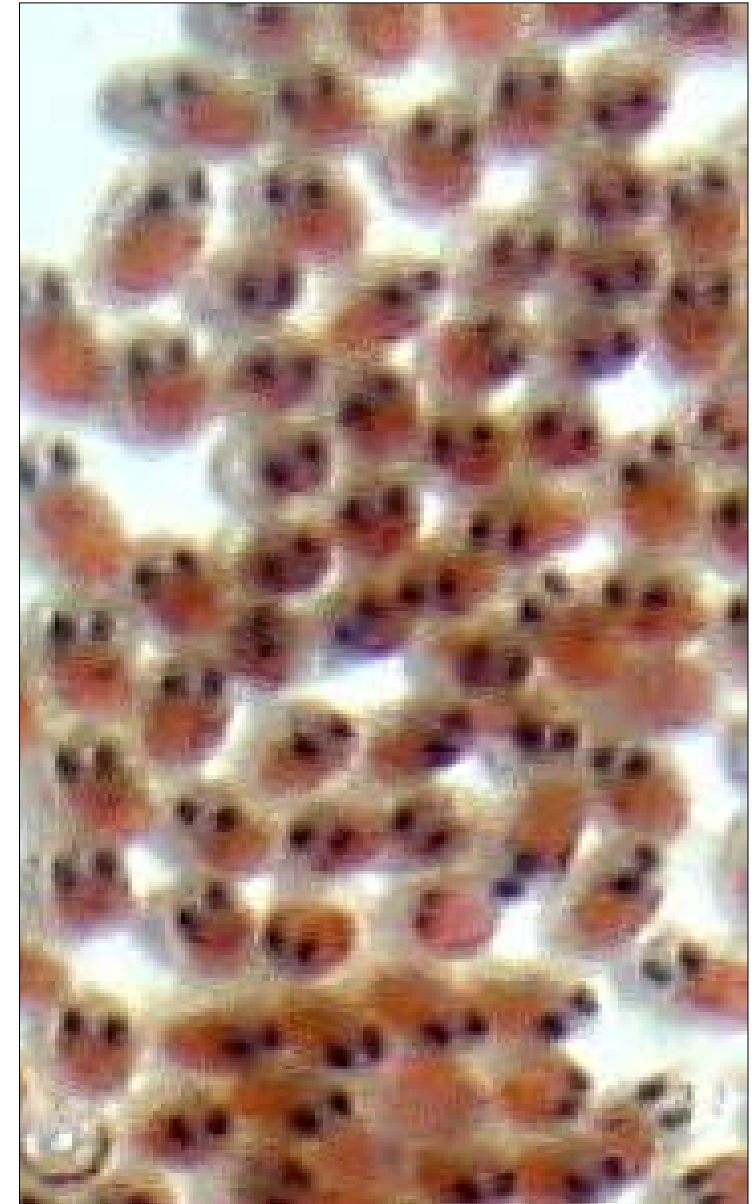




Stormwater 101

Vehicle Pollution

A4: Carwash soaps can also **kill fish and fish eggs**, and disrupt reproduction; and





Stormwater 101

Vehicle Pollution

A5: Soaps also contain chemicals that **lead to algal blooms.**





Stormwater 101

Vehicle Pollution

Q: **How can you** keep dirty water and soaps out of our waterways?

A: It's simple really!
The following guidelines can help:





Stormwater 101

Vehicle Pollution

A1: **Wash your car on the grass.** Pollutants are **filtered naturally** by the soil and grass; this does not harm the grass!





Stormwater 101

Vehicle Pollution

A2: **Porous (permeable) pavement** can help filter pollutants, too!



Photo by Quirkylee

Conway EcoFest





Stormwater 101

Vehicle Pollution

A3: Use **phosphate-free** car wash soaps and detergents; and/or consider



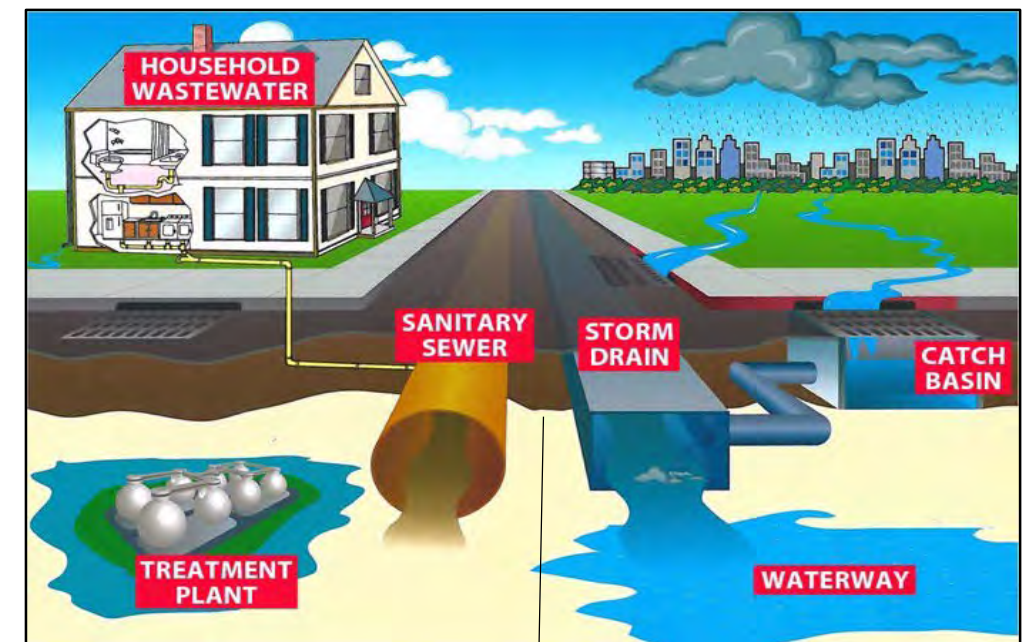


Stormwater 101

Vehicle Pollution

A4: washing your car at a **commercial car wash**.

The dirty water is **sent to a wastewater treatment plant** or recycled on-site



The **sanitary sewer system** transports wastewater from houses and buildings to a wastewater treatment plant.

The **storm drainage system** collects and transports runoff from streets and property directly into waterways.



Stormwater 101

Vehicle Pollution

Q: How can you keep vehicle fluids out of our waterways?

A1: **Maintain your vehicle** with regular tune-ups to help **prevent leaks**;

The cumulative impact of even a little is a lot!



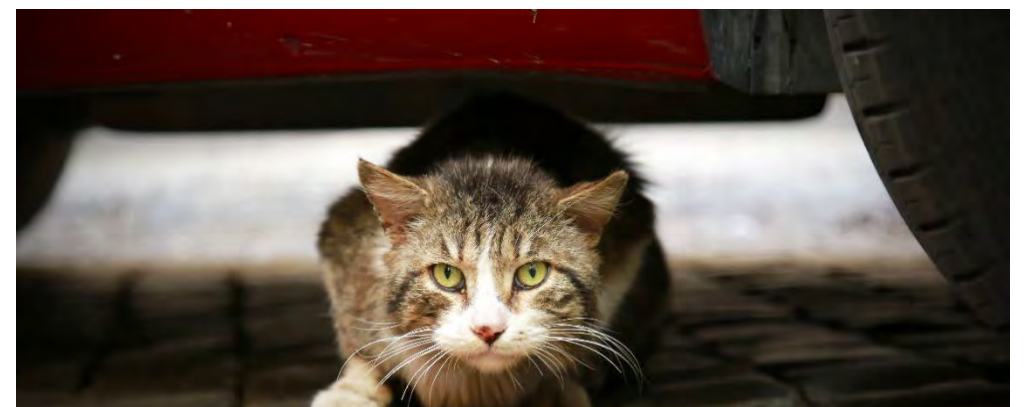


Stormwater 101

Vehicle Pollution

A2: **Use kitty litter or sawdust to clean** up leaks and spills right away. Be sure to collect and dispose of it in the trash; and

Antifreeze is especially dangerous to domestic animals, too!





Stormwater 101

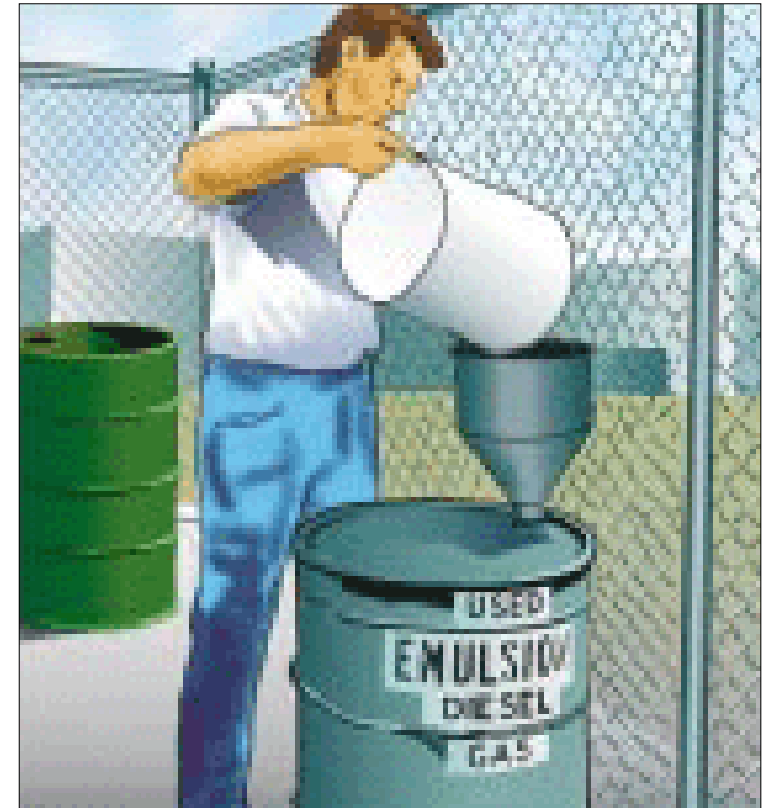
Vehicle Pollution

A3: **Properly dispose of all auto fluids.**

Most Auto Parts stores and many auto service businesses in Faulkner County **accept motor oil for recycling**. Call in advance to verify guidelines.

Never leave it unattended or pour into any part of the storm drainage or sewer systems, treated or not.

Fact: The equivalent of one oil change (5-qts) can contaminate up to one million gallons of fresh water when disposed of improperly!





Stormwater 101

Vehicle Pollution

Remember: **YOU** are the solution to stormwater pollution!





Stormwater 101

Vehicle Pollution

For more specifics on **Stormwater guidelines within the city of Conway**,

visit [http:// cityofconway.org/media/permits/O-09-13.pdf](http://cityofconway.org/media/permits/O-09-13.pdf), to help you learn how to protect our waterways.

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(For stormwater issues within the
Conway city limits)

For more information about Vehicle Pollution and Stormwater issues in Arkansas, contact the Arkansas State Highway and Transportation Dept. at the number below. :.

**WHEN YOUR CAR'S LEAKING OIL ON
THE STREET, REMEMBER IT'S NOT JUST
LEAKING OIL ON THE STREET.**



Leaking oil goes from car to street and is washed from the street into the storm drain and into our lakes, streams and ground water. Now imagine the number of cars in Arkansas and you can imagine the amount of oil that finds its way from leaky gaskets into our water. So please, fix oil leaks.

**Clean water is important
to all of us**

It's up to all of us to make it happen. In recent years sources of water pollution like industrial wastes from factories have been greatly reduced. Now, more than 60 percent of water pollution comes from things like cars leaking oil, fertilizers from farms and gardens, and failing septic tanks. All these sources add up to a big pollution problem. But each of us can do small things to help clean up our water too. And that adds up to a pollution solution!

Why do we need clean water?

Having clean water is of primary importance for our health and economy. Clean water provides recreation, commercial opportunities, fish habitat, drinking water and adds beauty to our landscape. All of us benefit from clean water and all of us have a role in getting and keeping our lakes, rivers, and ground water clean.

What's the problem with motor oil?

Oil does not dissolve in water. It lasts a long time and sticks to everything from rocks to bird feathers. Oil and other petroleum products are toxic to people, wildlife and plants. One pint of oil can make a slick larger than a football field. Oil that leaks from our cars onto roads and driveways is washed into storm drains, and then usually flows directly to a lake or stream. Used motor oil is the largest single source of oil pollution in our lakes, streams and rivers. Americans spill 180 million gallons of used oil each year into our waters. This is 16 times the amount spilled by the Exxon Valdez in Alaska.

Material courtesy of Puget Sound Action Team and Washington State Department of Ecology.

Clean Water tip:

How can you use and change your motor oil and help keep our waters clean?

- Stop drips. Check for oil leaks regularly and fix them promptly. Keep your car tuned to reduce oil use.
- Use ground cloths or drip pans beneath your vehicle if you have leaks or are doing engine work. Clean up spills immediately.
- Collect all used oil in containers with tight fitting lids. Do not mix different engine fluids.
- Never dispose of oil or other engine fluids down the storm drain, on the ground or into a ditch.
- Recycle used motor oil. Many auto supply stores and gas stations will accept used oil.

Together.... Better Roads, Cleaner Water

**Arkansas State Highway and
Transportation Department**

For more information, contact the AHTD Environmental Division at:
(501) 569-2230 or e-mail to stormwater@arkansashighways.com.





**CUANDO SU CARO TIENE UNA GOTERA
DE ACIETE EN LA CALLE, NO
SOLAMENTE ESTA GOTIANDO ACIETE
EN LA CALLE.**



**La gotera de su caro no solamente termina en la calle,
despues se va al drenaje, y luego termina en nuestros lagos,
arroyos, y finalmente termina en la aguas superficiales.
Ahora imagine cuantos caros hay en Arkansas y imagine
la cantidad de aceite que se encuentra en nuestra agua, por
nuestras goteras. Por favor repare sus goteras de aceite.**

Agua limpia es importante para todos

La solucion esta en nuestras manos. En los ultimos años se a visto una gran reducción de contaminación y residuos industriales. Ahora, mas del 60 por ciento de contaminantes del agua vienen de por medio de goteras de aceite de caros, fertilizantes agricolas, o de fosas septicas quebradas. Todas estas fuentes de contaminación llegan hacer una gran problema. Pero todos podemos poner de nuestra parte, y solucionar el problema.

Por que hace falta la agua limpia?

La agua limpia es importante para nuestro bien estar de salud y el de la economia. La agua limpia nos ofrece oportunidades recreativas y le da aprovecho al comerciante. Tambien ofrece la opurnidad de ir a pescar, de refrescar nuestra sed, y mejorar el medio ambiente. Todos provechamos del agua limpia y todos tenemos nuestro papel en el mantenimiento de nuestros rios, arroyos, y agua superficiales.

**Que es problema con el aceite para
motores?**

El aceite de motor no se disuelve en la agua. Al contrario, dura mucho tiempo sin disolverse y se pega a todo, desde las piedras hasta las alas de los pajaros. El aceite y quimicos derivados del petróleo son tóxico para la gente, las plantas, y la naturaleza. Un solo litro de aceite puede causar una capa de petróleo el tamaño de una cancha de fútbol. El aceite que gotea de nuestros caros al la carretera, termina en los drenajes que corren a un lago o arroyo. El aceite gastado es la fuente mas grande de contaminación de nuestros lagos y arroyos. En los Estados Unidos se derraman mas de 180 millones de galónes al año. Es 16 veces mas la cantidad que derramo petrolero Exxon Valdez en Alaska.

**Consejos para agua
limpia:
Como usar y cambiar
el aceite de motor, sin
contaminar el agua?**

- Pongale fin a la gotera.
Inspeccióne su caro de goteras y mantengalo afinado, asi no gasta tanto aceite.
- Se puede utilizar mantas que atrapan el aceite cuando esta trabajando en su motor, y limpia de inmediato cualquier derrame de aceite
- Junte todo el aceite usado en recipientes apropiados y nunca mezcla diferentes liquidos de motor.
- No es bueno deshacerse del aceite o cualquier otro liquido de motor en el drenaje, arroyo, o en la tierra
- Recicle el aceite de motor gastado. Una variedad de tiendas de autopartes y gasolineras reciben aceite gastado.





STORMWATER 101

Litter with Stormy the Fish

What you do at your home can impact the quality of my home, even if you don't live near a lake/stream/ocean! Here's how.



Stormwater 101

Litter

Q: What is the problem with **litter** in our waterways?

A: Litter can **foul waterways**, **cause flooding**, and **impact wildlife**. It's **ugly** and **costly** to clean up, too!





Stormwater 101

Litter

Q: How does **litter** cause **flooding**?

A: Runoff washes litter into the storm drainage system, which **blocks the flow of stormwater** and results in **flooded homes, streets, and property**.



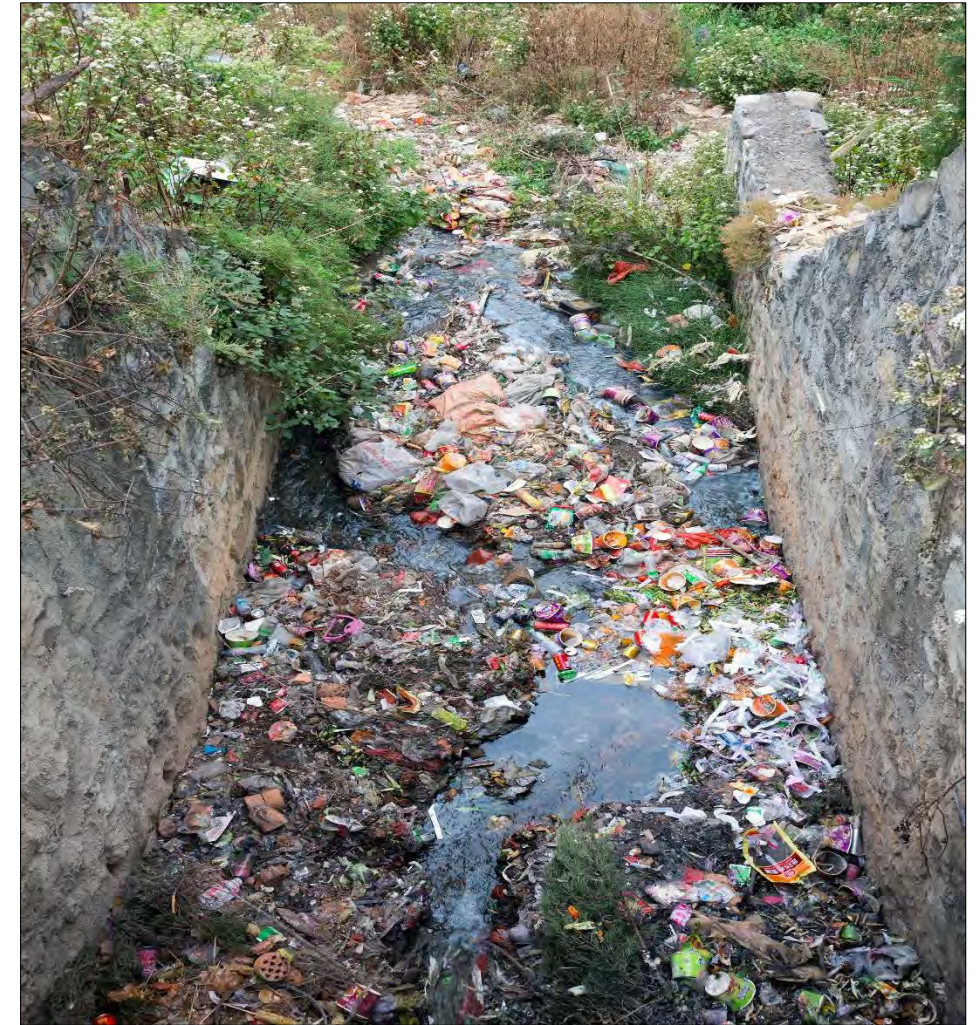


Stormwater 101

Litter

Q: Why is **litter** so **costly**?

A: Each year, **millions of tax dollars are spent to clean up** litter from streets and the drainage system.



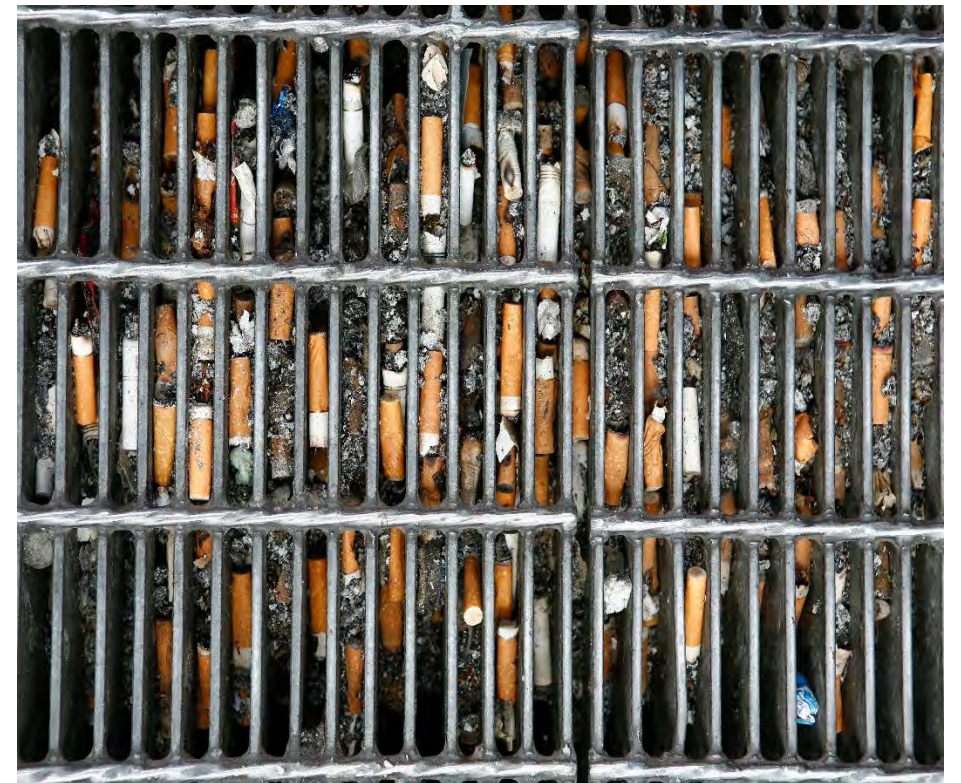


Stormwater 101

Litter

Q: **Cigarette butts** are litter too; why are they especially bad for the environment?

A: They contain **plastic fibers and chemicals** that take a long time to **break down** in the environment.





Stormwater 101

Litter

If you have to smoke, **always use an ashtray or receptacle** for cigarette butts!



Over 4,000 chemicals may be introduced to the environment via cigarette particulate matter (tar). The poisonous potency of these leftover butts is amplified when they are leached out by rainwater.



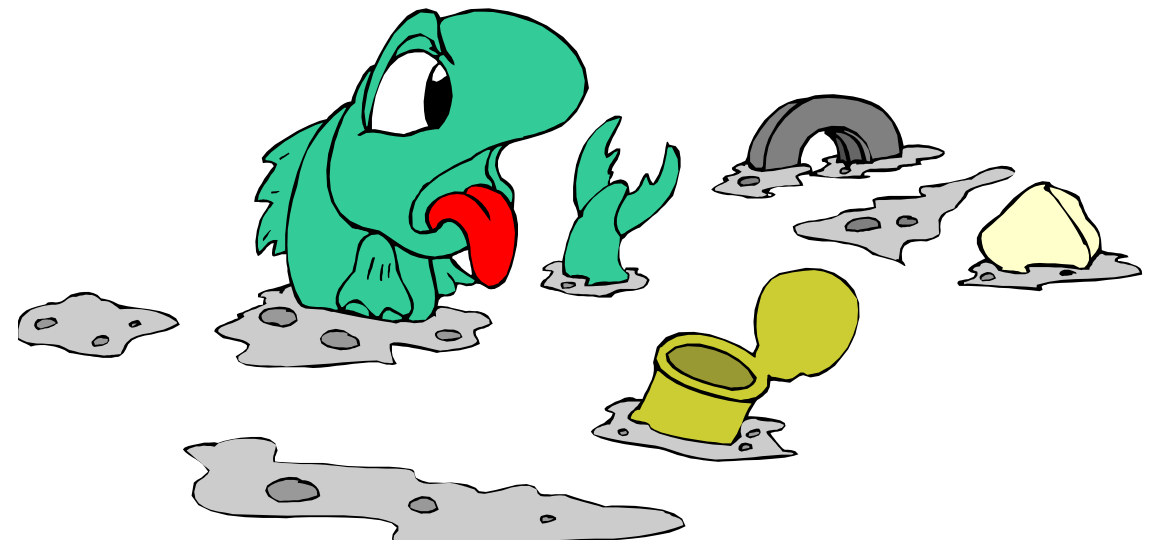


Stormwater 101

Litter

Q: How does litter **impact wildlife**?

A: Wildlife often **mistake litter for food** or become entangled in it.





Stormwater 101

Litter

For example, **Plastic bags** look like jellyfish, or lunch, to a sea turtle, and/or can wrap around boat motors;

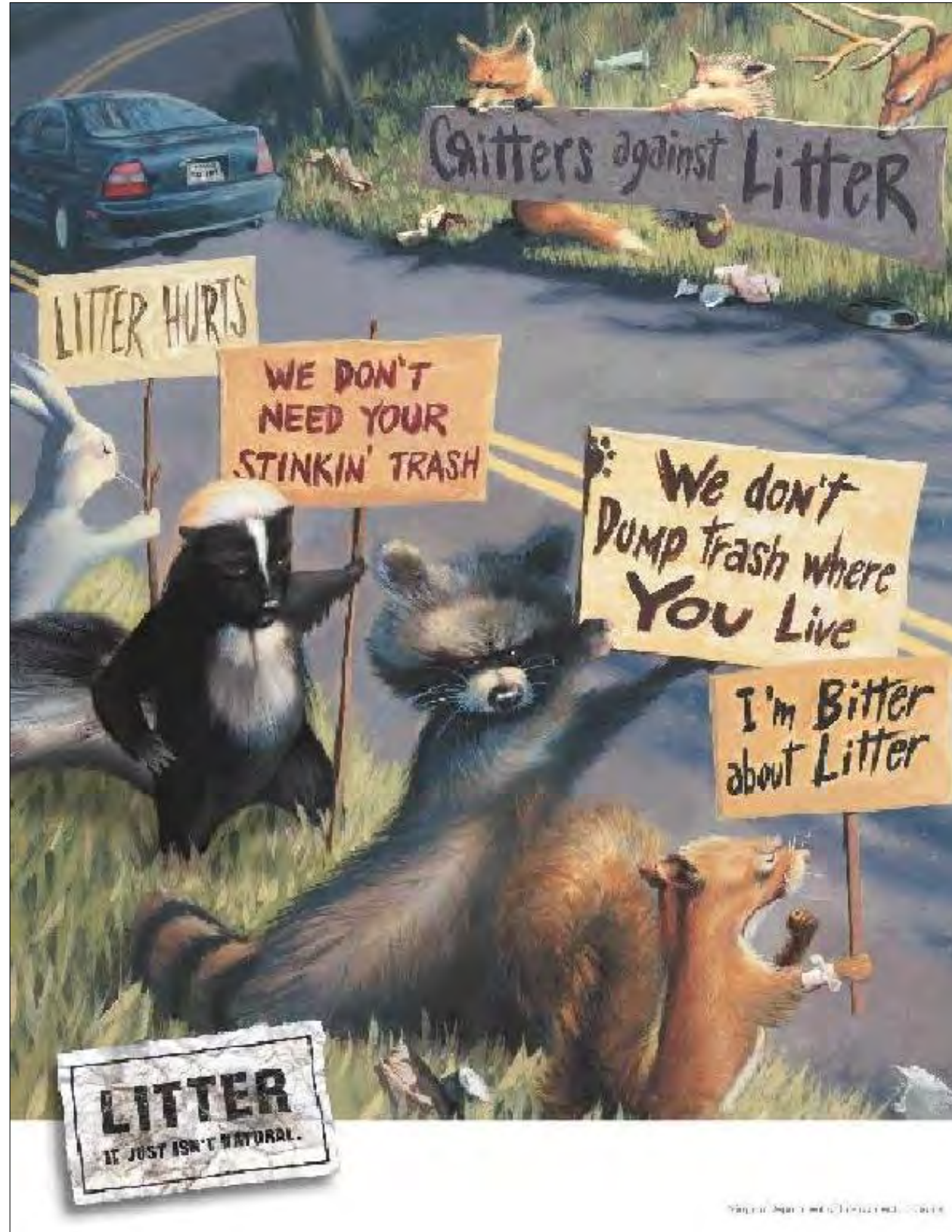
and **Six pack rings** often entangle fish, birds, and other wildlife, as demonstrated in Conway recently.





Stormwater 101

Litter





Stormwater 101

Litter

Q: How can you **help keep litter out** of our waterways?

It's really simple! The following tips should help:

A1: Always **put litter** where it belongs – in the **trash or recycling** bin;





Stormwater 101

Litter

A2: **report illegal dumps** in Faulkner County by calling (501) 336-0758 (Faulkner Co Solid Waste District);

A3: **report littering** on Ark. state highways by calling (866) 811-1222;

A4: **volunteer** for a local event by contacting your County Judge (in Faulkner County, contact Judge Jim Baker at (501) 450-4900 about clean-ups); and

A5: **get involved** and **visit** www.KeepArkansasBeautiful.com, email info@keeparkansasbeautiful.com, or call toll-free (888) 742-8701.





Stormwater 101

Litter

The City of Conway Sanitation and Recycling Department in Arkansas (501-450-6155), and

Faulkner County Solid Waste District (501-336-0758) have great education, waste, and recycling programs; E-Waste collections; and special clean-ups.

Call for more information and be sure to take advantage of them!





Stormwater 101

Litter

Remember: **YOU** are the solution
to stormwater pollution!





Stormwater 101

Litter

For more specifics on **Stormwater guidelines within the city of Conway**,

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Codes: 5.08.08; 5.08.12; 5.04.23A-D; 5.09.16.C8

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Welcome to...

STORMWATER 101

Pet Waste with Stormy the Fish

What you do at your home can impact the quality of my home, even if you don't live near a lake/stream/ocean! Here's how.



Stormwater 101

Pet Waste

Q: What is the problem with **Pet Waste**?

A: Pet waste causes **water pollution** and is a **human health hazard**.





Stormwater 101

Pet Waste

Q: How does pet waste cause water pollution in our waterways?

A: Stormwater runoff picks up and carries **pet waste into waterways**, which can add **harmful bacteria and nutrients** to our waterways





Stormwater 101

Pet Waste

Q: How does **harmful bacteria** from pet waste impact waterways?

A: Bacteria can close shellfish beds and **make water unsafe for recreation or drinking.**





Stormwater 101

Pet Waste

Q: How do **excessive nutrients** impact our waterways?

A: Nutrients can cause intense algal blooms and aquatic weed growth and **lead to fish kills**.





Stormwater 101

Pet Waste

Q: What happens when algal blooms decompose?

A: Decomposing algae **uses up oxygen** in water that fish need to survive.





Stormwater 101

Pet Waste

Q: Why is **pet waste a hazard to human health**?

A: It **contains viruses, bacteria, and parasites** that can make humans and animals very sick.





Stormwater 101

Pet Waste

Q: What are some **diseases** that can be **transmitted to humans**?

A: Toxoplasmosis, E-Coli, Salmonella, Gastroenteritis, Roundworm, etc.





Stormwater 101

Pet Waste

Q: What are **symptoms** of these diseases?

A: **Infections**, fever, abdominal pain, fatigue, muscle aches, enlarged liver, swollen lymph nodes, diarrhea, vomiting, headaches, birth defects, etc.





Stormwater 101

Pet Waste

Q: **How** are bacteria and diseases in pet waste **passed to humans**?

A1: By **swimming or recreating in waters** contaminated by pet waste;





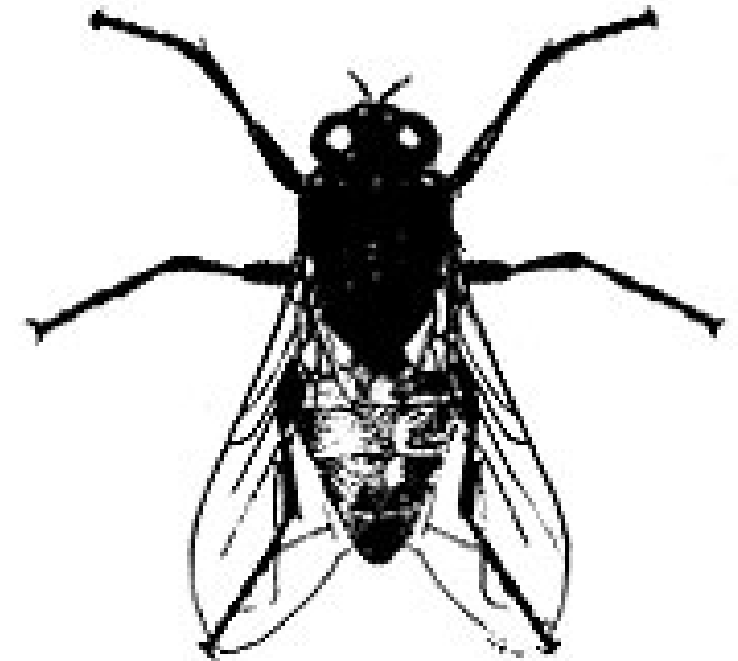
Stormwater 101

Pet Waste

A2: By **eating shellfish from waters** polluted by pet waste;

A3: By **direct contact** with pet waste; and

A4: By **flies** that spread disease.





Stormwater 101

Pet Waste

The presence of fecal coliform bacteria means that a waterway has been contaminated by fecal matter.

It means that a health risk exists for humans and animals exposed to this water.





Stormwater 101

Pet Waste

Q: How can you **help keep pet waste out** of our waterways?

It is simple really!
The following tips should help:





Stormwater 101

Pet Waste

A1: Always **pick up after your pet** and dispose of the waste properly;



**PLEASE
CLEAN UP AFTER YOUR DOG**



DOGS ON LEASH



POOP ZONE



CLEAN AFTER YOUR PET



THROW IN THE GARBAGE



Stormwater 101

Pet Waste

A2: **Seal it** in a plastic bag and throw it away; or

A3. **Bury it** in a hole at least 5" deep and away from water;





Stormwater 101

Pet Waste

A4: Please **DO NOT** flush pet waste
down the toilet; and





Stormwater 101

Pet Waste

A5: use and/or encourage **pet waste stations** in your community;





Stormwater 101

Pet Waste

A6: Install and use a pet waste digester.

Digesters use enzymes to break down waste safely and effectively.





Stormwater 101

Pet Waste

Don't forget about outdoor cats, too!

Consider a covered litter box outside to keep their waste out of our waterways!





Stormwater 101

Pet Waste

Remember: **YOU** are the solution
to stormwater pollution!





Stormwater 101

Pet Waste

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Codes: 5.08.08; 5.08.12; 5.09.16.C8

Just Scroll down for
conclusion



(For stormwater issues within the
Conway city limits)



Stormwater 101: Conclusion

Thank you for taking time to view this program with your families, and for doing your part to keep our waters safe for your family, for our families, and for (your) our community as a whole!

This brief overview obviously doesn't cover the subject completely.

As you may have noticed, a few contacts have been included, but there are more resources for every topic and every age level on the Internet.

Updates, links, and additional information will be added periodically, so please check back often.

Some other reliable agencies and organizations include the following:

- Municipal/County Water Districts or Stormwater Departments
- Department of Agriculture, Extension Offices
- Department of Forestry and Department of Game and Fish
- Environmental Protection Agency
- Watershed Alliances
- Solid Waste Districts in Arkansas
- Keep America Beautiful; Keep Arkansas Beautiful

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Don't forget, the list of items to avoid;
<https://www.conwaycorp.com/services/water-wastewater>