



Storm Drain Marking Program



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Storm Drain Marking for Young People

To the Educator or Group Leader:

The materials contained in this booklet are to be used by children's groups involved in the Storm Drain Marking Program. These groups may include school classes, Girl Guide, Brownie, Boy Scout and Beaver groups.

What is Storm Drain Marking?

Storm Drain Marking is a conservation and education project developed by Fisheries and Oceans Canada, the B.C. Ministry of Environment, and the B.C. Conservation Foundation. Community groups mark a yellow fish symbol beside storm drains in their neighbourhood and hand out pamphlets door-to-door. The symbol and pamphlet remind residents that if they dump toxic substances into the drains they may poison fish and wildlife in a nearby stream.

Why involve children?

Children are the front-line of Storm Drain Marking. They love to paint on the street, with permission, but more importantly, they are learning a new way of caring for their environment.

What exactly will the children learn?

Children will learn that:

1. Fish need clean, even-temperature water and a continuous supply of food.
2. Storm drains are not part of the sanitary sewer system.
3. Everything that empties into a storm drain eventually ends up in fish and wildlife habitat.
4. Toxic substances can enter a storm drain two ways: washing in with water, or being dumped in.
5. There are alternatives to letting toxic waste wash or be dumped into storm drains.

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Before you go...

Choose one or more of the
activities to suit your group.





Where the Water Goes

(5 minutes)

Preparation

Read this over before the program.

Action

Read this section aloud to the group slowly and clearly.

Imagine what your neighbourhood was like two hundred years ago. Cougars, deer and bear roamed forests of gigantic trees. Eagles and falcons flew overhead. Ducks, geese, frogs, insects and fish lived in great swamps.

Streams flowed from the swamps down to the sea. Ferns, berry bushes and fallen trees hung over streams filled with salmon and trout. Picture cold, clear water rushing over your bare feet; a fish tickling your toes.

When the rain fell, it landed on the mossy forest floor. Some was absorbed back up into the trees, some flowed overland to creeks, some slowly filtered through the ground, was cleaned, and returned to the swamps and creeks.

The Indians gathered food, medicine and building supplies from the forests and the streams. Then the Europeans came. They chopped down the forests, filled in most of the streams, and built towns. More people moved to the area and they needed houses, stores and roads.

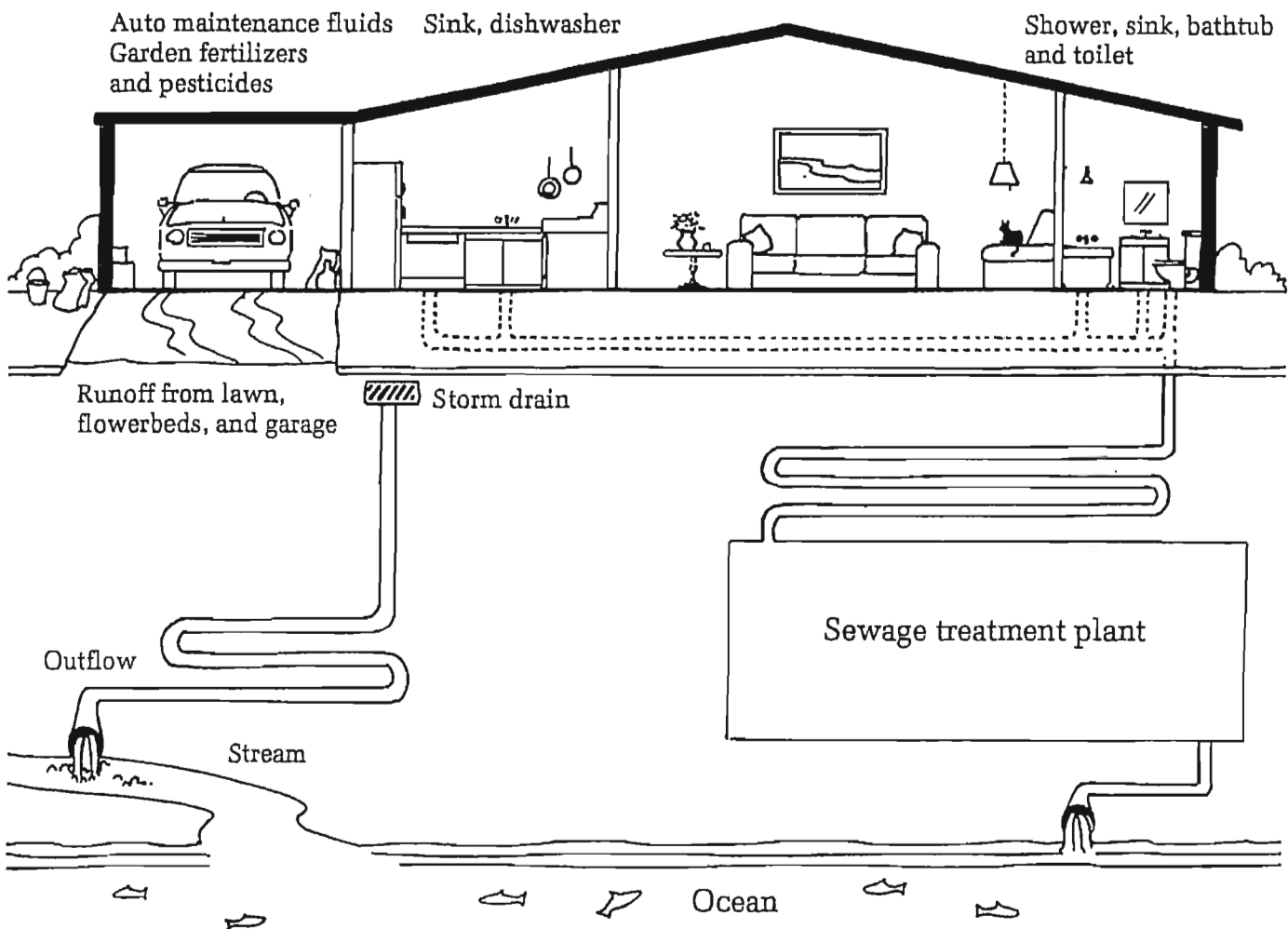
Think of your neighbourhood today. Are there more houses and roads than trees? Is the street in front of your house made of moss or is it made of concrete and asphalt? When it rains where does the water go? Water cannot soak into concrete. Today, when it rains, the water rushes along the streets, driveways and parking lots carrying along with it litter, dust, oil, gas, fertilizer, pesticides and anything else that will float. This runoff flows along the gutters into storm drains.

Follow-up

Distribute a copy of the drawing on the next page to each child. Have the children discuss the two different drainage systems. Encourage them to take the picture home and discuss/draw their own home's drainage system.



Where the Water Goes





Hands up for Drains

(3 minutes)

Preparation

Read this over before the program.

Action

This is a warm-up to the discussion. Anyone in the group who can answer yes to the following questions, puts up his/her hand.

Describe a storm drain, or show the children a picture of one (use the pamphlet).

How many of you:

- have seen a storm drain before?
- have a storm drain on your street? In front of your house or apartment?
- have had your bike tire caught in a storm drain?
- have seen a storm drain plugged up with leaves and sticks and garbage?
- have seen car-wash soap suds flow into a storm drain?

Where do you think the water and suds go when they empty into a storm drain?

- to rivers where trout live?
- to creeks where salmon lay their eggs?
- to lakes where ducks swim and raccoons fish?
- to beaches where crabs and snails hide under rocks?

Everyone is right. Storm drains are connected by underground pipes to rivers, creeks, lakes and beaches. Everything that goes down a storm drain ends up in animal habitat.

The water that drains down your sink, tub and toilet in your home goes into a different system of pipes called the sewer system. This dirty water doesn't flow untreated into fish habitat.

How many of you think that a fish can swim in:

- a chlorinated swimming pool?
- a bubble bath?
- a can of paint?
- a can of gasoline?

A fish would die if it had to swim in any of these substances. Fish need clean water and a continuous supply of food. Young salmon use their eyes to search for food and if the water is murky and polluted they will starve.

Follow-up

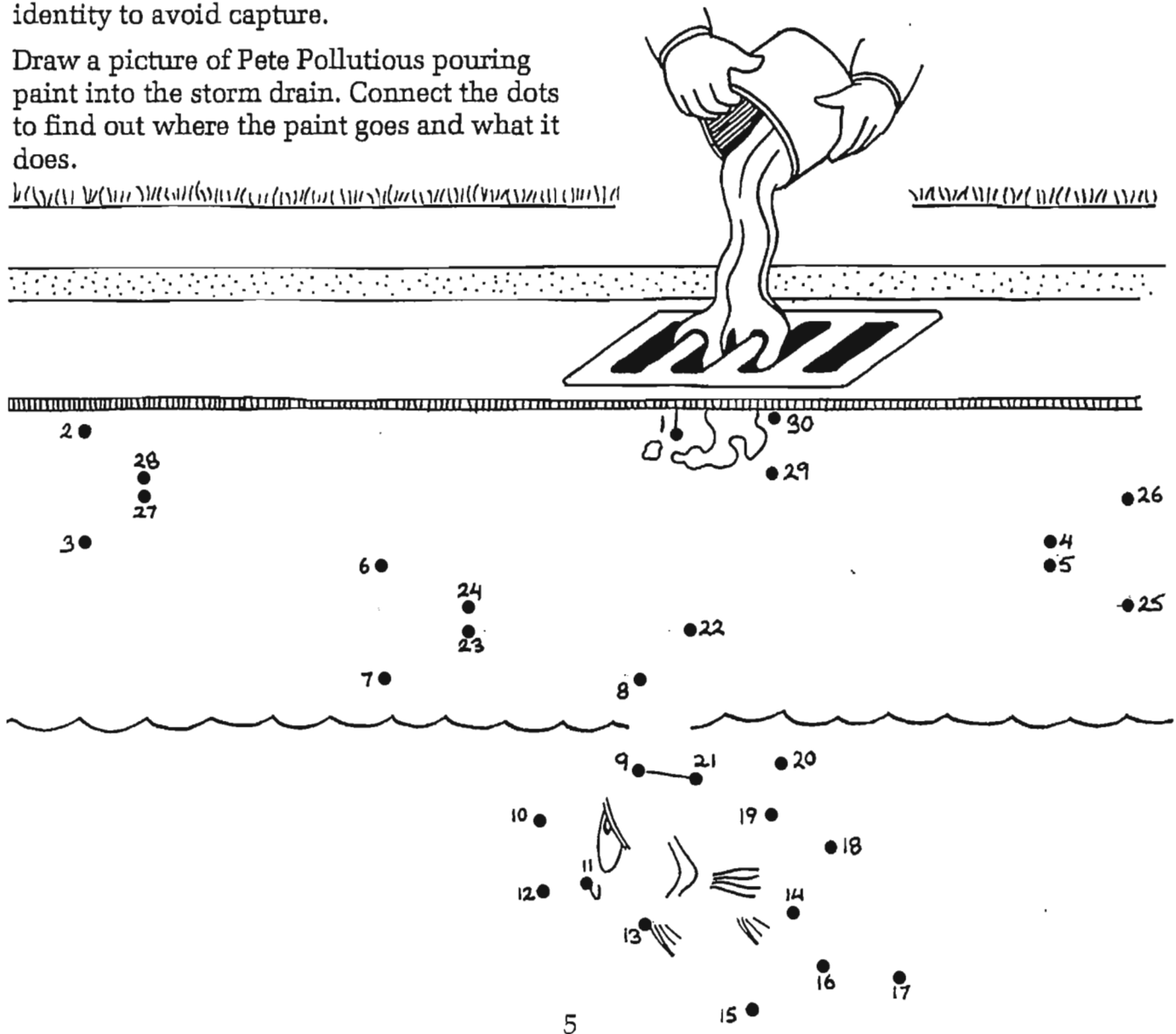
Distribute a copy of the activity on the next page to each child.



Pete Pollutious Pours the Paint

Pete Pollutious lives on the planet Effluent. His mission is to pollute the waters of other planets. He is able to transform himself into any shape. He is constantly changing his identity to avoid capture.

Draw a picture of Pete Pollutious pouring paint into the storm drain. Connect the dots to find out where the paint goes and what it does.





Antifreeze Antifish

This story is taken from the curriculum material *Salmonids in the Classroom*, available through British Columbia Teachers Federation Lesson Aids.

Preparation

Read the following story to the children.

Jamie Carlson and Nicole Blanshard had been best friends since they were in preschool. They had walked to and from school together almost every day during their first three years at school. By the time they were eight years old a combination of peer pressure and divergent interests had caused them to drift apart. Now as they neared the end of their elementary school days they didn't see much of each other except when their families got together a couple of times a year.

However, today their paths crossed because Nicole had stayed late for band practice and Jamie had been kept in to complete an overdue assignment.

"Looks like you have tons of homework," Nicole commented, looking at Jamie's full-to-the-brim backpack.

"Yeah, school's a lot tougher this year. I can hardly wait until high school," he added sarcastically. "I wish school was as much fun," he added, "and as easy as playing hockey."

Nicole smiled and was about to ask how his team was doing when she saw something out of the corner of her eye that caught her attention – and Jamie's.

Three teenagers were standing around the shiniest red sports car either of the two pre-teens had ever seen. Hoses and buckets were evidence that the car had recently been washed.

"Wow!" Jamie and Nicole exclaimed in unison.

"It's a Porsche – a Targa Porsche," whispered Nicole.

"Shows what you know about cars," Jamie retorted, "It's a Corvette."

"Bet it's a Porsche," challenged Nicole.

"You're on for a Loonie," answered Jamie. "Let's take a closer look."

As the friends approached, each eager to have proof of their betting positions, they noticed that there were several tools, rags and cans among the buckets and car washing paraphernalia.

"Well, it's all set now. Oil's changed, antifreeze's topped up, battery's charged," one of the boys, obviously the owner, said proudly.

"Don't forget my great clean and shine job. That will cost you a ride downtown," reminded another of the trio.

"Let's go then," piped in the third boy.

"Grab those tools and get rid of that old oil and antifreeze," the car owner ordered.

"What about the paper towels?"

"Just dump everything down that drain over there by the curb. That's what my Dad



does." The boy giving all the orders jumped in the car and started up the powerful engine.

One of the other boys gathered up the tools and put them in the trunk. Then he and the third boy took the cans over to the storm drain. They were just about to pour the contents down the drain when Nicole shouted spontaneously, "Don't do that! Antifreeze and oil are for cars; not for fish."

Jamie looked at Nicole. He had never seen his quiet friend so outraged. If he'd been on the ice he would have expected gloves and sticks to be dropped.

The boys with the cans were startled at first, then they looked amused. One of the boys broke the silence.

"We're not feeding fish, little girl. We're just going to get rid of this stuff. What do you think this drain is for?"

Action

Show the video "Storm Drain Marking Program."

Follow-up

Discuss the events of the story. You may want to ask the following questions.

- What do you think Nicole was so outraged about?
- List all the ways that Nicole might use to convince the boys not to put their pollutants down the storm drain. Choose the one solution that you think would be most workable and give 4 reasons for your choice.
- How could the boys have disposed of waste products? What would be the safest way to get rid of each of the products?
- Act out an ending for the scenario with Jamie and Nicole.

Distribute the words to the rap song (on the next page) and have the children sing the song. In pairs or individually have the children make up their own rap song about storm drains.

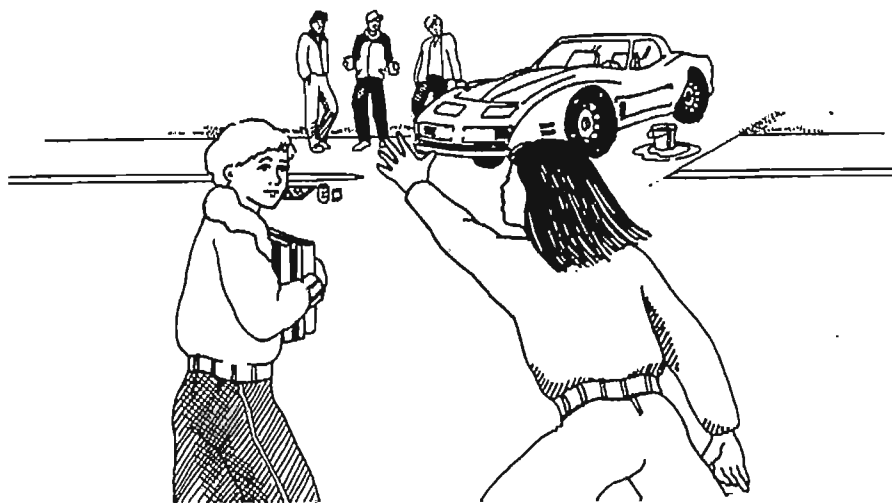




Rap Song For Fish

When you're washing your car in the mid-summer's heat...
do you dump the dirty water down the drain on the street?
Once the water goes down, you see the path it will seek...
only goes a little ways then puts it straight in a creek.
We should think of all **fish** that are going to be...
hurt by all the chemicals that they can't even see.
So it isn't very smart, ecologically...
and it doesn't make sense to me.

So if they painted a fish by the mouth of each drain...
would it help to get the message running through our brain?
When you looked at the fish you'd remember the case...
for chemicals and other junk this isn't the place.
The thing you gotta know is that it's up to you...
to take what you have learned today and make it what you do.
So remember what you've heard, through the words are nothing new...
the **fish** deserve a long life too.



Going out to mark storm drains





Organizing Tips for the Leader

Preparation

Complete the Waiver Claim Form.

Read over the tips on this page and the instructions on How to Mark a Storm Drain.

Select an area in your neighbourhood which has little traffic and storm drains that need marking or re-marking.

Mark as many drains as you wish. There are usually 2 or 3 storm drains per city block. A squeeze bottle of paint will mark approximately 20 drains, which takes an average of up to 2 hours to mark.

Safety First

Watch for traffic. Look both ways if you have to cross the street. If you're not involved in the marking, then stand on the sidewalk. Watch for cars backing up and for cars exiting driveways.

Avoid spills. Be careful with the paint and equipment. Please clean all equipment after use. Replace lost or damaged items.

Suggestions for Large Groups

Divide participants into teams of up to 5 people. An adult should accompany each team. Two teams work as a pair, one on each side of the street. Team members NEVER CROSS to the other side.

For multiple teams, have children bring extra used brushes and cottage cheese containers (for paint) from home. You may also need extra masking tape, safety vests, gloves, and garbage bags.

Suggested Tasks

Traffic Watchdog	Record Keeper	Whisk Broom Sweeper
Brochure Deliverers	Stencil Positioner	Painter

List of Supplies

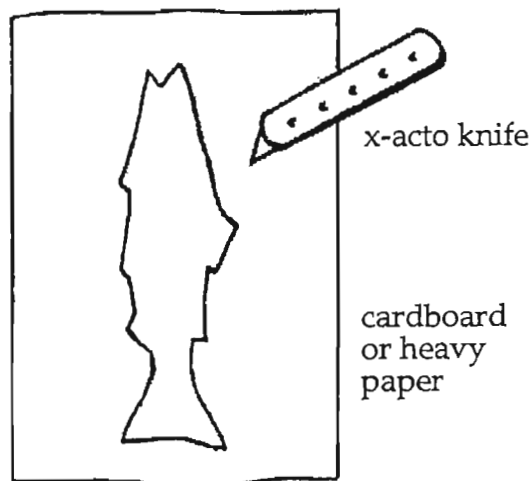
Squeeze bottles of yellow paint	
Metal fish template for making cardboard stencils	
Brushes	Masking tape
Whisk broom	Rubber gloves
Safety vests	Brochures
Garbage bags	



How to Mark



a Storm Drain



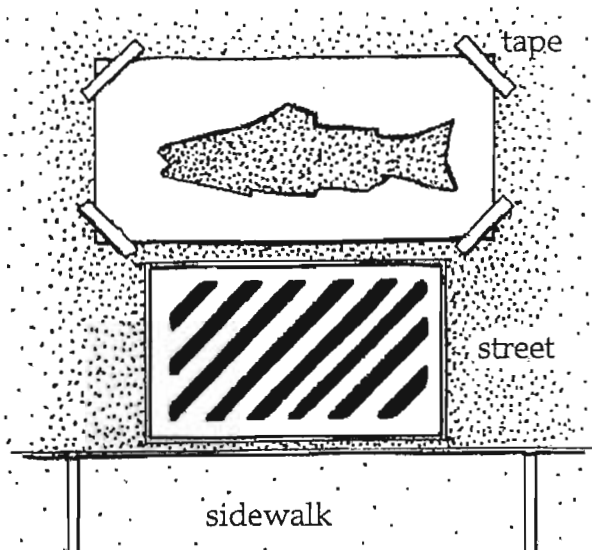
Before you start

1. Complete waiver claim form.
2. Use **metal template** to trace outline of fish on heavy paper or light cardboard (manila tag, old file folder or cereal box). Cut out stencils with X-acto knife or scissors. One stencil can be used for several drains.
3. Fill squeeze bottles with paint if necessary.
4. Explain procedures and assign jobs to participants (suggest no more than 4-5 participants on a team).



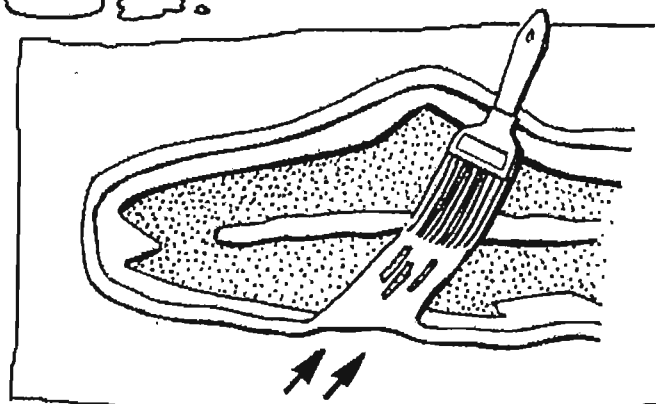
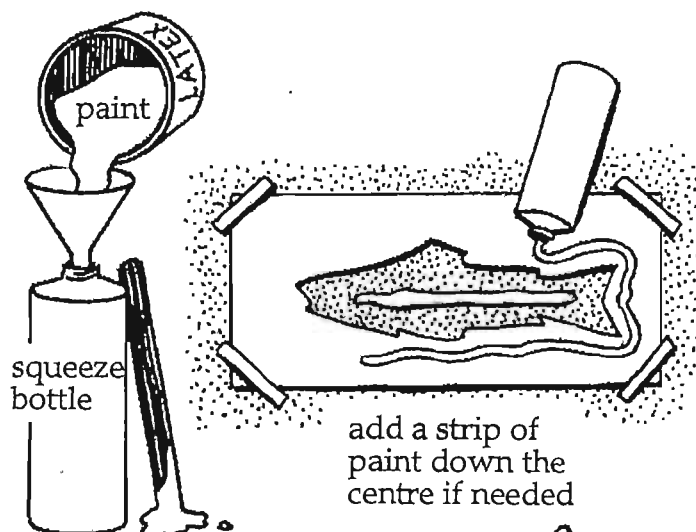
Prepare the drain

1. Wear **safety vest and gloves** while painting drains. Post a watchdog to watch for cars.
2. Use **whisk broom** to sweep dust, gravel and dirt from pavement.
3. **Position stencil** on the road (not sidewalk) above the storm drain. Fish is upright when viewed from sidewalk and 5 – 10 cm from the storm drain.
4. **Masking tape** fastens each corner of the cardboard template in position.



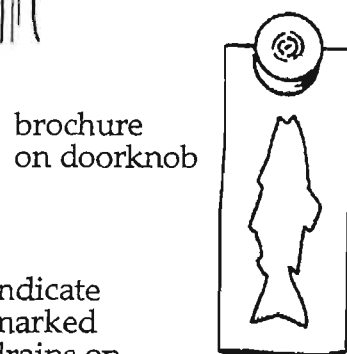
Paint the drain

1. **Squeeze paint from bottle** onto the cardboard template 1 cm from the edge of the fish cutout. Add more paint in the centre of the fish if needed.
2. **Brush towards centre** of fish. Add more paint from squeeze container as required. Continue brushing until road surface within the outline of fish is completely and evenly painted.
3. **Remove cardboard template** and tape from road surface. The paint will dry in approximately 10 - 15 minutes. Use the template on the next drain if it is still in good condition.
4. **When you are finished for the day** - clean brushes with water. Put used templates in a garbage bag. Leave the equipment as clean and tidy as possible.



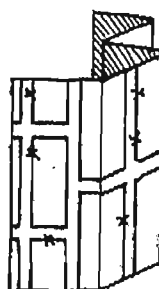
Deliver information

1. **Hang a brochure** on doorknob of each house on the street where storm drains are marked. Do not knock on doors.



Record marking information

1. **Indicate streets** you have marked on map.
2. **Complete record form.**



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Storm Drain Marking Program LIABILITY WAIVER

IT IS REQUIRED that all groups and/or individuals marking storm drains be covered by appropriate liability and personal accident insurance. All participating governments require these as a condition of approving Storm Drain Marking activities in their respective jurisdictions. Before undertaking marking activities, please read and sign this waiver then return waiver to your Area Coordinator.

We understand that it is the responsibility of our group to have, or to obtain appropriate liability and personal accident insurance coverage for all volunteers participating in the above noted project. It is also the responsibility of the key contact (or designate) to supervise the group while marking the storm drains.

I have read and understand the above noted responsibility clause and hereby acknowledge that the governments of Canada, and the municipality concerned, their officers, agents and employees, are not liable for any personal injury or destruction of property associated with the Storm Drain Marking Program.

Signed _____

Date _____



Storm Drain Marking Program RECORD FORM

PLEASE INDICATE THE NUMBER OF DRAINS YOU HAVE PAINTED

1. Use a pen and street map to show the streets where you painted drains.
2. Complete this form for our records.

Name of group _____ Date _____

Key contact _____ Phone Number _____

Number of
drains marked _____

Number of houses
receiving brochures _____



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When you come back

These activities require some
preparation and may take a little
more time to complete.





Reading, Writing and Talking

The activities on this page may be cut out and used as activities for individuals, pairs or small groups of children.

You may wish just to use the ideas to start a discussion.

1. Imagine your four year old cousin is visiting you and sees the yellow fish on the road. She asks you what it means. How would you explain it to her. (Remember, she is only four.)

2. If storm drains are not good places to dump chemicals and other junk, where should people put their soapy car washing water? Draw a cartoon strip, using the yellow fish symbol as your main character to illustrate your suggestions. (How can you be sure that your suggestion for getting rid of such wastes is safe?)

3. The children in the video were handing out brochures to people who stopped by to look at the yellow fish. Design a flyer to tell people about the Storm Drain Marking Program.

4. Do you think the people who made the video got their message across? If so, why? If not, why not?

Write a letter to the Department of Fisheries and Oceans telling them your reasons.

Address: Stewardship and Community Involvement
Habitat and Enhancement Branch
Fisheries and Oceans Canada
Suite 200, 401 Burrard Street
Vancouver, British Columbia, Canada V6C 3S4

5. Write and perform a play (or puppet play) about storm drain polluters using one or more of the following characters: Connie Careless, Gus Gutter, Samantha Sewer, William Waterway.



The Poisons

Preparation

Go through your cupboards at home. Collect together some of the substances on the following list. If you don't have very many, or any of the substances, then put water in jars and label it. For example, put water in a jar and label it: swimming pool water. (Make sure to tape the lids firmly on all bottles, boxes, jars before this activity.)

Substances:

oven cleaner
antifreeze
dog shampoo
fertilizer
weed killer
motor oil
car wash detergent
chrome polish
paint thinner

Action

If you have a group of younger children, show them the various substances. If you have a group of older children, divide them into smaller groups. Give each smaller group one of the substances and ask them to answer the three questions. Then choose a representative to report back to the larger group on their answers.

Questions

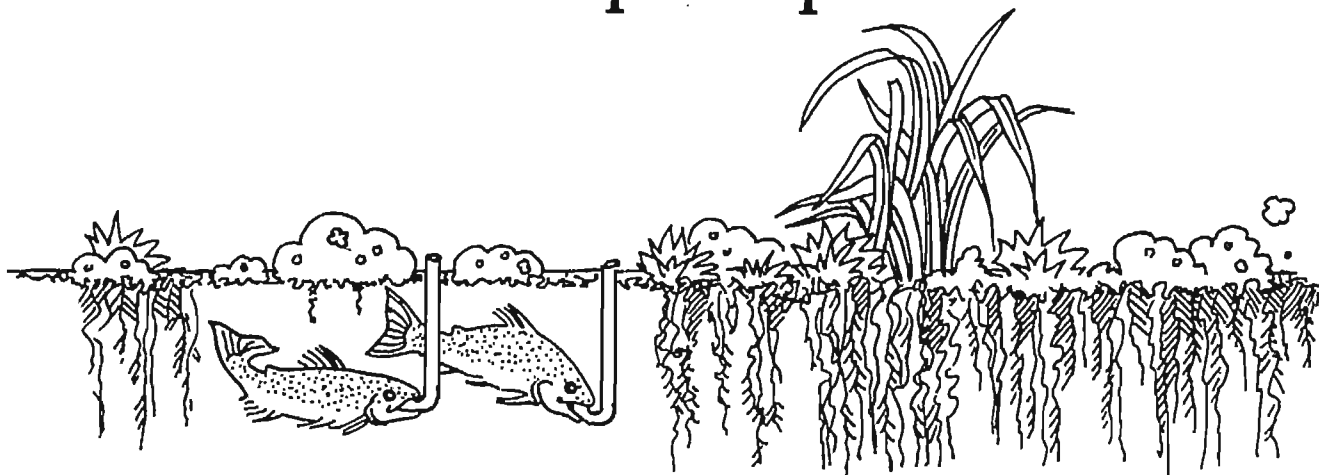
1. How would this get into a storm drain?
 - a) dumped in
 - b) spread on lawns or gardens or driveways and washed in with the rain
2. If this substance got into a storm drain and emptied into a creek would it kill the fish?
3. Can you think of better ways to get rid of this stuff than throwing it down a storm drain? Is there something else we could do instead of buying and using this product?



Source: "Sleuth" Manual, Washington State Office of Environmental Education.



Gasp! Gasp!



Preparation

Phosphates are used in powdered laundry detergent to whiten clothes. At one time the phosphate content was quite high, but since 1971 the maximum amount allowed in powdered detergents is 4.5 percent. While this may lessen the chances of polluting waterways with phosphates from detergents, phosphates from other sources still endanger our water. Sewage and fertilizer both have a high phosphate content. Phosphates in lakes and streams enrich the water so much that algae grows out of control. When the plants die, larger amounts of oxygen are required to decompose them. The demand for oxygen becomes so high that fish and other organisms don't get enough. The end result is polluted water.

Action

Discover for yourself how phosphates affect the growth of water plants like algae. You will need a small sample of algae from a pond,

three clean jars, a small amount of powdered laundry detergent and a small amount of phosphate fertilizer.

1. Fill each jar $\frac{3}{4}$ full with water. Add 5 ml of powdered detergent to one jar, 5 ml of fertilizer to another and leave one plain. Label each jar.
2. Add the same amount of algae to each jar and put all three jars in a sunny window for two weeks.
3. At the end of two weeks, compare the amount of algae in the jars.

Questions

- In which jar did the algae grow fastest?
- Did anything unusual happen to the water?
- How could phosphates get into local waterways?

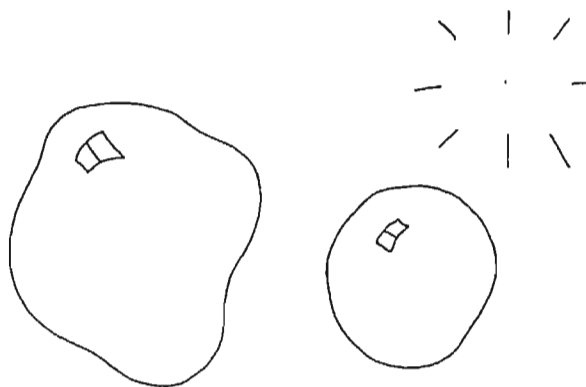
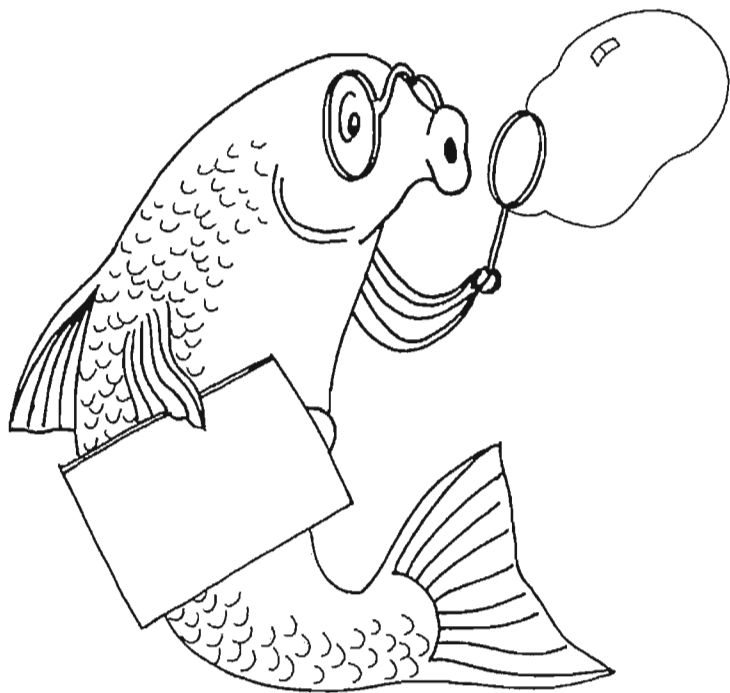
Source: "Sleuth" Manual, Washington State Office of Environmental Education.



Troubles with Bubbles

Preparation

Detergent is not soap. A true soap is made mainly from the action of a strong alkali on fats or fatty acids. Soaps can be used only with water whereas detergents can be designed for use in gasoline, oil, alcohol—anything. True soaps do not contain phosphates whereas detergents do. Phosphates pose a problem to the environment. When you see suds floating in a stream, it is more likely that you are seeing detergent and not soap suds. If the water is agitated, detergent suds can come back to life after going flat. This is not so with soap suds, as you may have discovered in the bathtub.



Action

Compare the lasting quality of suds from detergent with those from soap.

1. Fill 2 test tubes $\frac{1}{3}$ full with tap water.
2. In one, put 5 drops of a liquid detergent, in the other put 5 drops of liquid soap. Label and note the time.
3. Seal each test tube with a stopper. Shake the test tubes equally hard for the same number of times to create a thick layer of suds.
4. After one hour do both have the same amount of suds? Which has more? What happened after two hours?
5. Note how long it takes for the suds to completely disappear from each sample. Now shake the detergent sample vigorously. Do the suds reappear?

Source: "Sleuth" Manual, Washington State Office of Environmental Education.



Storm drains on your street now have yellow fish.

**They are there to remind us
that storm drains empty
directly into nearby streams.
We need to keep harmful things
out of storm drains.**

**The fish were painted by local
residents and children who care
about your local streams.
You can help, too!**

•
**Dispose of household
hazardous wastes correctly.**

•
**Empty hot tub and pool
water slowly into the ground.**

•
**Recycle products
when possible.**

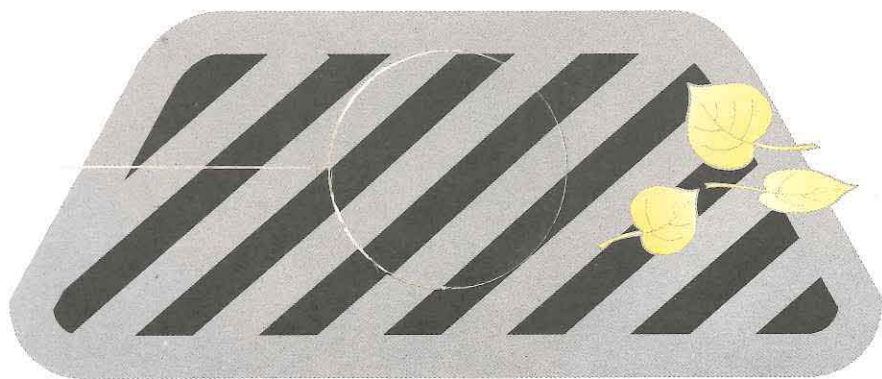
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**For information on local recycling and
collection facilities, contact the
B.C. Recycling Hotline at 1-800-667-4321 or
604-732-9253 in Greater Vancouver.**



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This is a storm drain.

Storm drains collect rainwater that runs off roads, parking lots and driveways.



**Storm drains empty
into streams.**

The rainwater collects litter, oil, gas, fertilizer, pesticides and anything else that will float or dissolve. Sometimes people mistakenly dump paint, antifreeze and other harmful chemicals directly into storm drains. All these untreated pollutants flow through the storm drains and into streams.



**Pollution is a constant
danger to streams.**

If everyone lets just a little fertilizer, a little carwash detergent, or a little motor oil run into a storm drain, it all adds up to toxic levels. Plants and small insects die. Salmon and trout either move out, or they die too. Soon the stream will support little, if any, life.



**Storm Drain
Marking Program**
You can help.

If your drain has not yet been marked, join with neighbours to paint this well-known symbol on your streets. For further information contact a Community Advisor at your local Fisheries and Oceans Canada office, in the telephone blue pages.

STORM DRAIN MARKING



STORM DRAIN MARKING

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