

This book is in support of an environmental education project sponsored by West Cork Development Partnership (WCDP) and produced by Coomhola Salmon Trust.

In these pages you will find an introduction to the water cycle, information on the rich Biodiversity (including humans!) which a healthy River Ilen supports and it furthermore contains useful information on how we impact upon water quality and how we may achieve 'Best Practice' in pursuit of livelihood, recreation, and domestic management.

The Water Framework Directive (2000/60/EC), in "establishing a framework for Community action in the field of water policy," indicates provision for "educational projects" (Annex VI, Part B, xv) to support the wider objectives of achieving good status ground and surface waters. The rationale behind this provision is based on the fact that a community which has the benefit of an improved awareness of the water-cycle (and its capacity for supporting human socio-economy together with a wider biodiversity), together with knowledge of best-practice principles (to minimise anthropogenic impacts), will be in an enhanced position to assist in realising the objectives of the Water Framework Directive, both in terms of water quality as well as water conservation issues; the empowering of a community with these skills will achieve wide and manifold benefits across all sectors.

The people of the River Ilen Catchment and Coastal Zone work hard for their communities and businesses to make this a great place to live and to make a living. West Cork Development Partnership is a local development company with a wide range of supports and functions that actively partners many of the groups and enterprises in the area. Through LEADER we invest in community facilities, walking routes, heritage and environment conservation, farm diversification, rural tourism and business growth. Through the Rural Recreation Scheme we support the community and land owners to develop and maintain trails, creating access to nature and supporting local tourism. Other programmes like the Local Community Development Programme, Tús and the Rural Social Scheme support the local community in addressing their own needs in an inclusive and sustainable manner. Through all of this life and endeavour flows the River Ilen and its network of tributaries. The cycle of water gives us the most practical demonstration of how dependent we are on each other for life and well being. We hope that in seeking to protect, promote and enjoy the natural environment, and particularly the water cycle, local people will find this booklet and the accompanying Streamscapes programme valuable. For more information on the work of the West Cork Development Partnership visit www.wcdp.ie.



streamscapes | ilen

The River Ilen Catchment & Coastal Zone



Produced by:

Coomhola Salmon Trust, Ltd.
Bantry, Co. Cork
Ireland
t: 027 50453
e: streamscapes@eircom.net
www.streamscapes.ie

West Cork Development Partnership Ltd.
West Cork Technology Park,
Clonakilty, Co. Cork, Ireland
t: 023 8834035
e: info@wcdp.ie
www.wcdp.ie

www.streamscapes.ie/ilen



Welcome

StreamScapes is a dynamic Environmental Education Programme for primary and secondary schools, Community & Corporate groups, and anyone interested in learning more about their local environment.

SAFETY FIRST

The StreamScapes method involves a hands-on survey of your local landscape and waterways...Safety must always be the paramount concern. If you are undertaking aquatic survey, remember that all bodies of water are potentially dangerous places.

Slippery stones and banks, broken glass and other rubbish, polluted water courses which may host disease, poisonous plants, barbed wire in riparian zones, fast moving currents, misjudging the depth of water, cold temperatures...all of these, and others, are hazards to be minded! If you and your group are planning a visit to a stream, river, canal, or lake for purposes of assessment, ensure that you have a good ratio of experienced and water-friendly adults to students, keep clear of danger, and insist on discipline and caution.

Welcome to the StreamScapes Ilen Project, sponsored by West Cork Development Partnership (WCDDP). All of the Primary and Secondary Schools, together with several Community & Voluntary and Corporate Groups in the River Ilen Catchment and Coastal Zone, are taking part in studies of their local aquatic Habitats and Species. For more information on the StreamScapes Ilen Project see: www.streamscapes.ie/ilen

StreamScapes Series Editor: Mark Boyden

Thanks to:

The Schools, Community and Corporate Groups who are participating in the River Ilen Project
StreamScapes Staff: Stephanie O'Toole, Jessica Mason, Aaron O'Sullivan, Laura Kinsella, Neill Clarke, Kevin Byrne, Ciaran Winters, and Jim Kennedy and Maria Kennedy of Atlantic Sea Kayaking

A special appreciation to Ivan McCutcheon & David Tuohy of West Cork Development Partnership

Design: idesigns, Schull, West Cork, Print: Hudson Killeen, Dublin

Original species artwork by Jessie Mae Winchester

"StreamScapes Ilen" © 2014 Coomhola Salmon Trust, Ltd.

For further information contact:

Coomhola Salmon Trust, Ltd. Bantry, County Cork, Ireland

t: 027 50453 e: streamscapes@eircom.net, w: www.streamscapes.ie

The "StreamScapes Ilen" Project is about:

- Becoming aware of the rich aquatic and biodiversity resources which surround us, and
- How, through 'best-practice', we may assist in conserving and enhancing these resources

If you live in the River Ilen Catchment or Coastal Zone, take a look around: From the hills above us to the sea below, water courses make their way across our landscape and define the Catchment in which we live. Here a mountain stream runs swiftly and tumbles over waterfalls; there a wide river flows easily past green fields, through our communities and down to the sea.

In that river, along its banks, in the surrounding landscapes and out into the Coastal Zone, may be found a wealth of Biodiversity; fish, birds, insects, animals, trees, wild flowers, and people, but only if our waters run pure and clean. For our Catchment also contains our farms, forests, and factories, towns and toilets. We need all of these, but we must also come to understand how, as we work and play, or cook and clean and garden at home, we have a huge impact on water quality around us. This project celebrates the River Ilen Catchment and Coastal Zone and aims to help us appreciate the importance of water quality.

We all share our aquatic, or water, resource. I depend on clean water, coming to me from upstream, for anything I might do, from making tea to watering my garden to milking my cows. Neighbours downstream from me also depend on how my actions impact upon their need for clean water.

If we keep our waters clean;

- Our community's businesses and enterprises thrive
- Our health is better
- Our rates and taxes are lower, and...
- We will have an abundance of wildlife!

Come explore these pages...learn about The Water Cycle, about the Bugs that live in our River, about Wildlife, and about what we can do to conserve these riches!

Check out the cool Map of the River Ilen Catchment & Coastal Zone (insert)

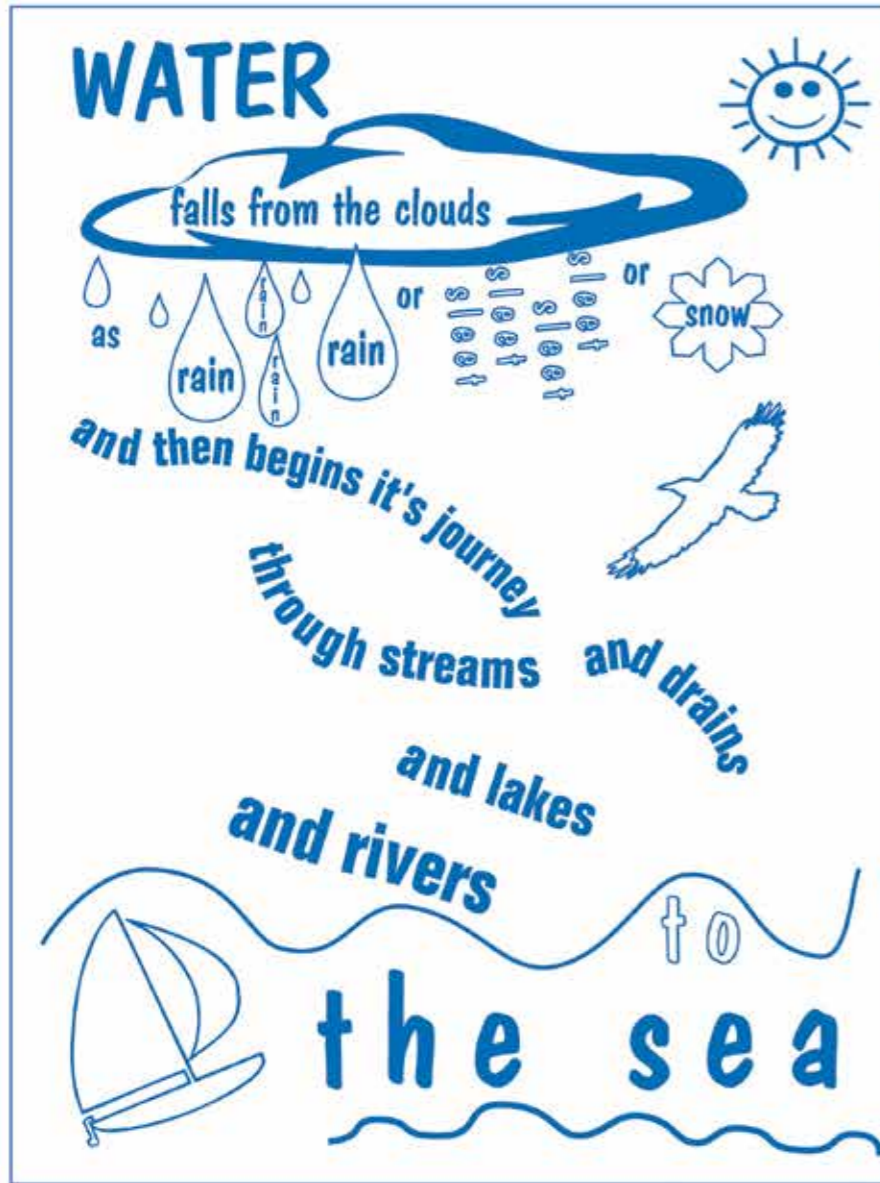
Read all about River Ilen Habitats on Page 18



Printed on Cocoon Offset Fibre sourcing and recycling 100% post-consumer fibres, FSC ® Recycled certified and PCF (Process Chlorine Free). Chemicals: no substances classified as carcinogenic, mutagenic, or repro-toxic (CMR) are used as raw materials. Printed using vegetable oil-based inks and water based varnishes and sealants. Chemicals and solvents used in the processes are recycled or safely disposed of outside the public drainage system.

Welcome to the Water-Cycle!

Water's Journey from Mullaghmesha to Roaring Water Bay



But that's only half the story - how does it get up there in the first place?



And what about people????

The water that's on the earth today is exactly the same water that was always here - no more and no less!

Water begins its life perfectly clean but on its way it collects things



All these things need water -



(well ok, maybe not ginger bread people) (or dinosaurs) (but everything else)



Most animals need to drink every day (adult humans 2-3 litres) and die within a few days if they don't.

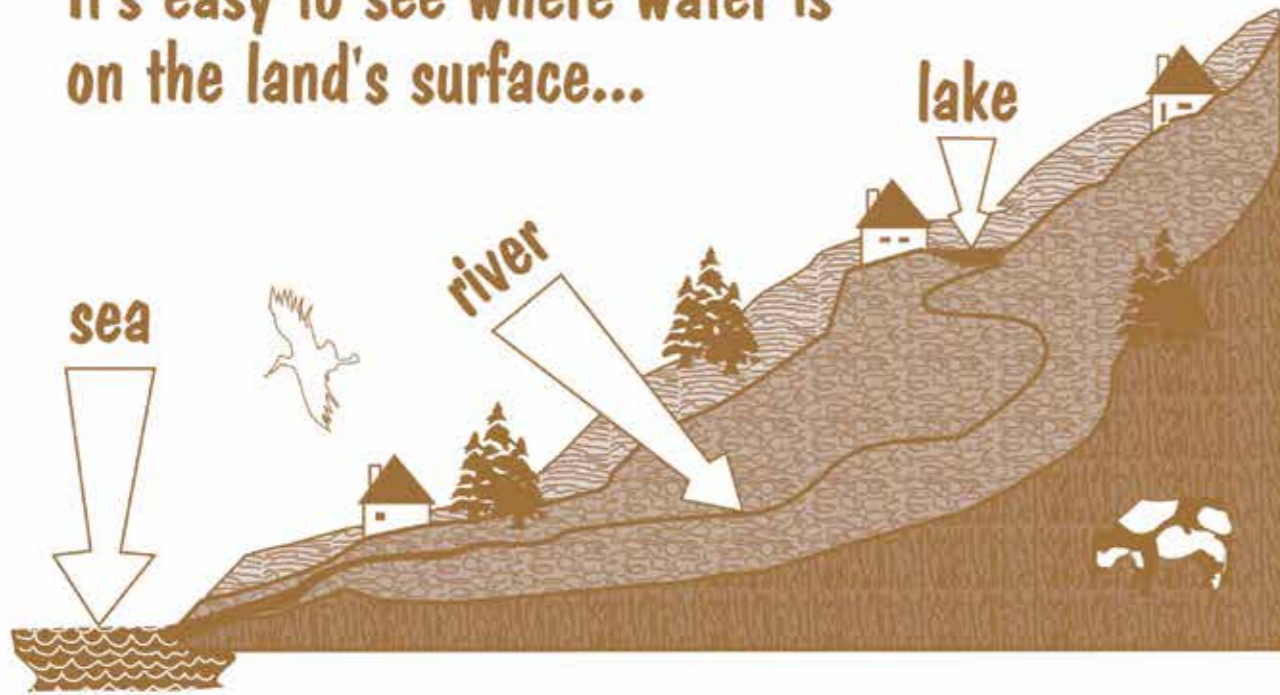
Some animals don't usually drink but get the water they need in their food



In the summer a big tree needs about 200 buckets-full of water EVERY DAY!

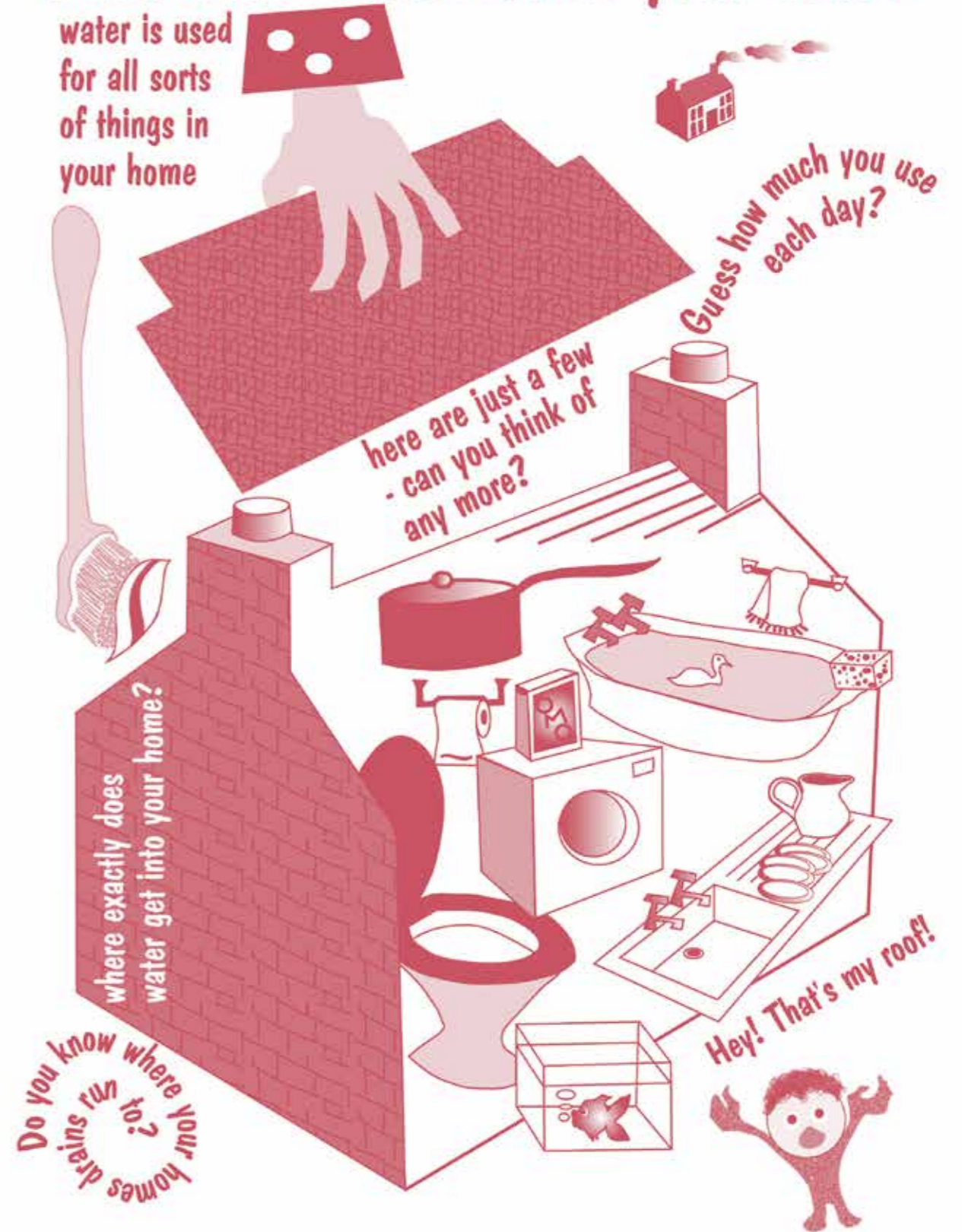


It's easy to see where water is on the land's surface...



Let's have a look inside your house

water is used for all sorts of things in your home



here are just a few - can you think of any more?

Guess how much you use each day?

where exactly does water get into your home?

Do you know where your homes drains run to?

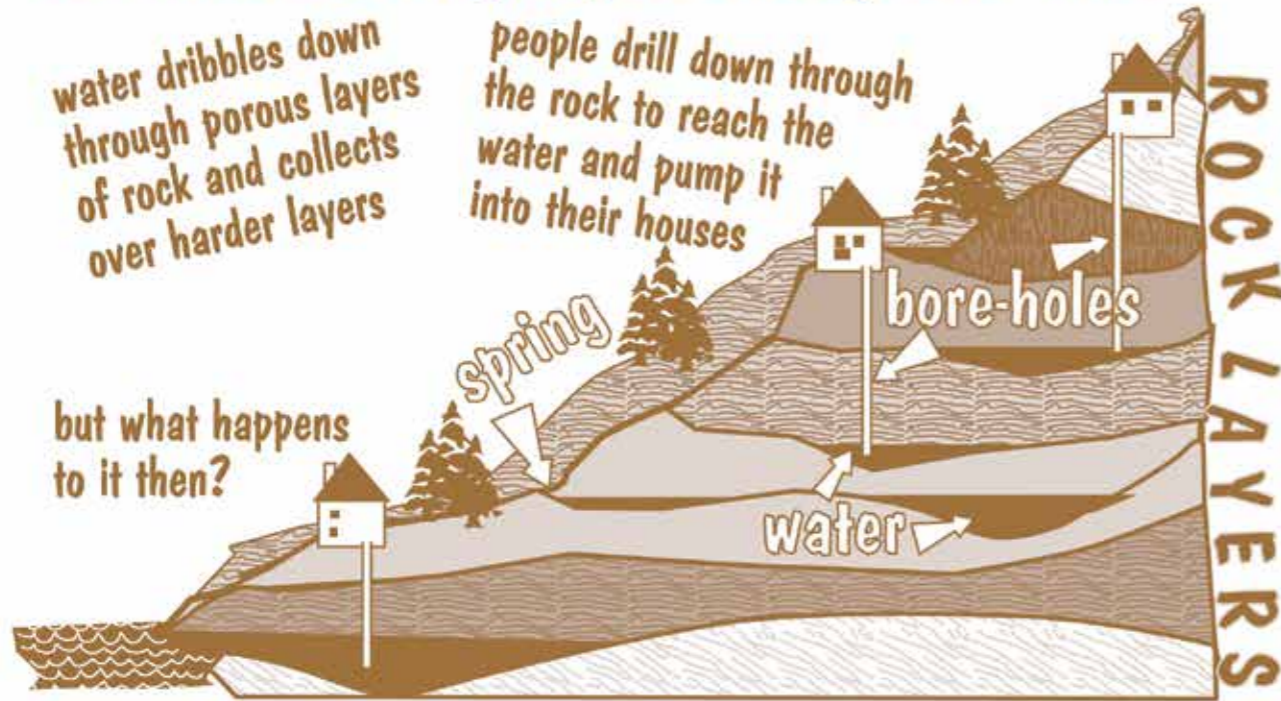
Hey! That's my roof!

But there's a lot going on underground too...

water dribbles down through porous layers of rock and collects over harder layers

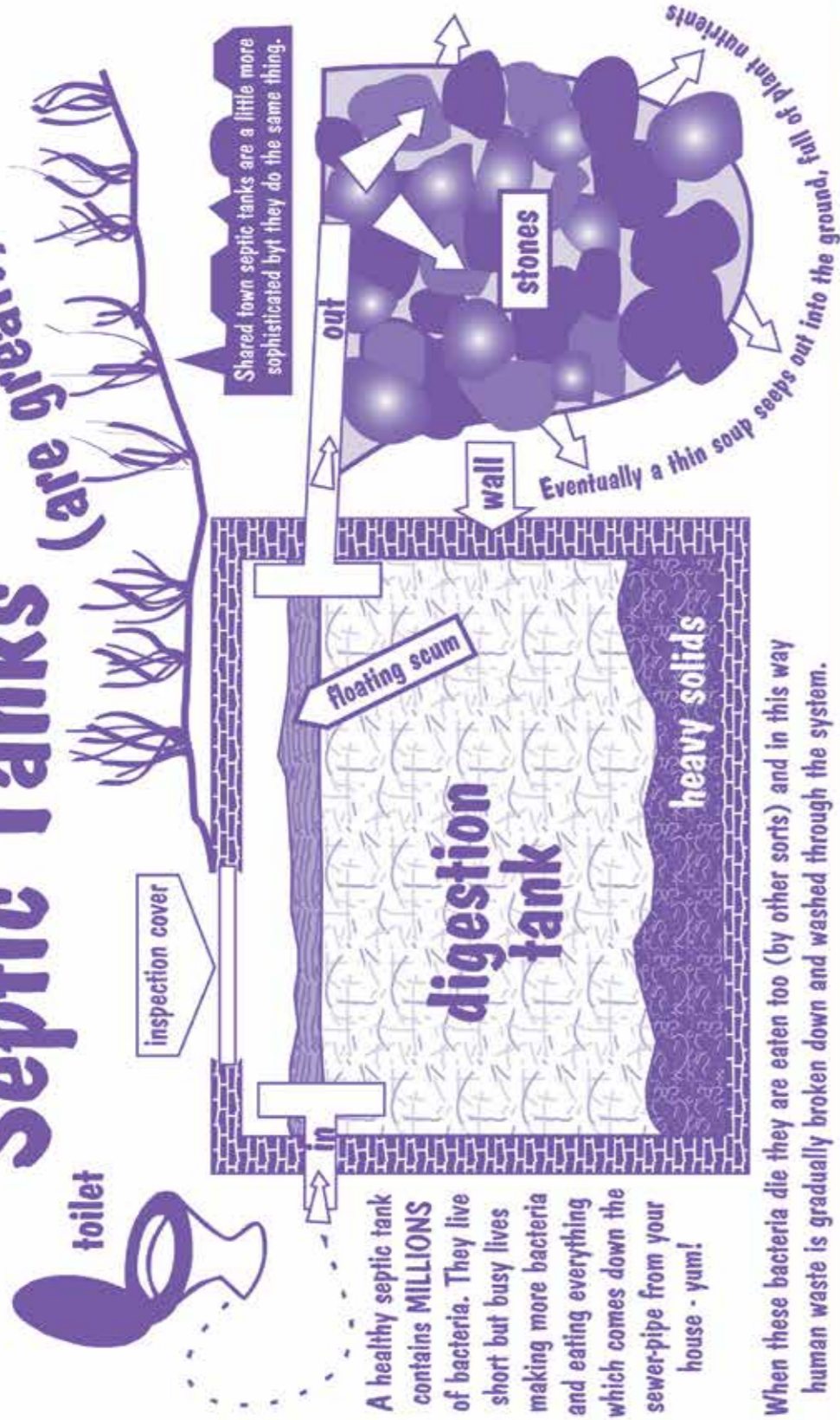
people drill down through the rock to reach the water and pump it into their houses

ROCK LAYERS



but what happens to it then?

Septic Tanks (are great!)



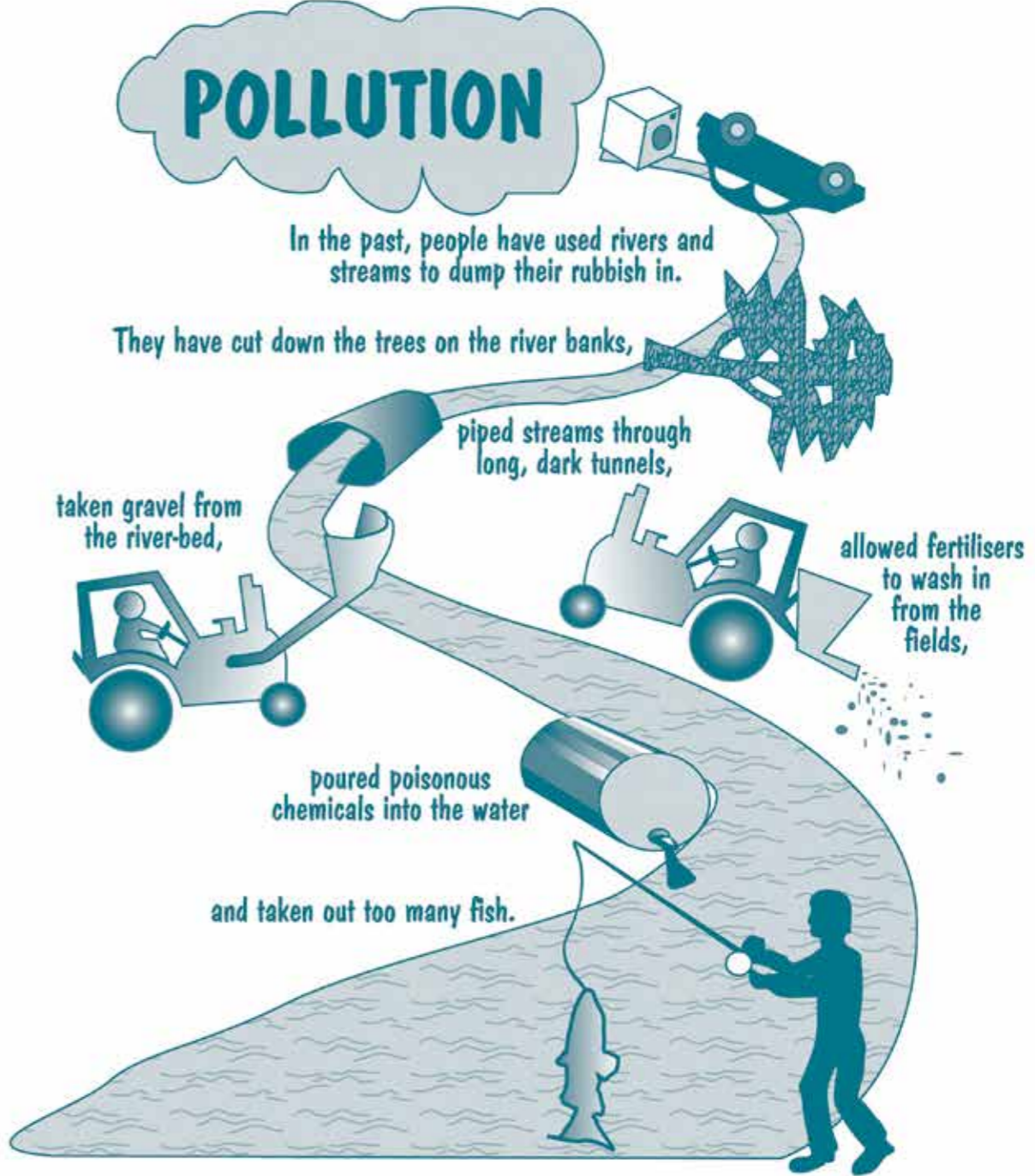
Shared town septic tanks are a little more sophisticated but they do the same thing.

A healthy septic tank contains **MILLIONS** of bacteria. They live short but busy lives making more bacteria and eating everything which comes down the sewer-pipe from your house - yum!

When these bacteria die they are eaten too (by other sorts) and in this way human waste is gradually broken down and washed through the system.

BUT - the bacteria in your septic tank are sensitive little things and are killed by Bleaches, Toilet cleaners, Disinfectants etc.

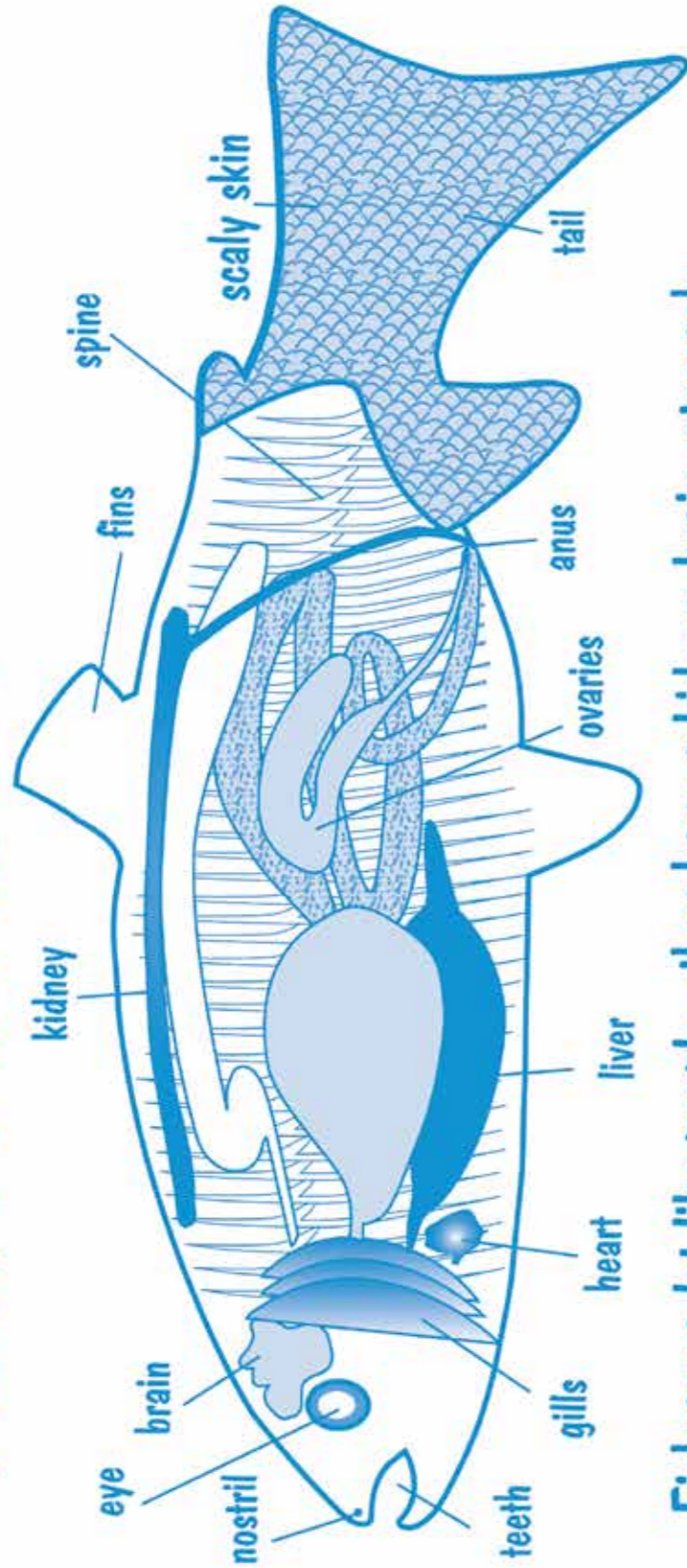
POLLUTION



Not surprisingly, this has left lots of miserable smelly horrible-looking rivers!

BUT these days everybody realises how important water is to all of us. If we respect our water systems then we can all have a happy healthy life in an interesting and exciting environment.

FISH ANATOMY

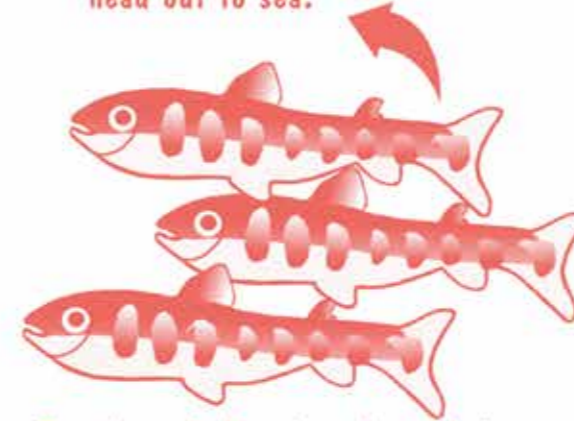


Fish are a lot like people - they have a kidney, brain, stomach, heart, liver, spine, intestines, ovaries (or testes), skin, teeth and eyes - even nostrils! Just like us!



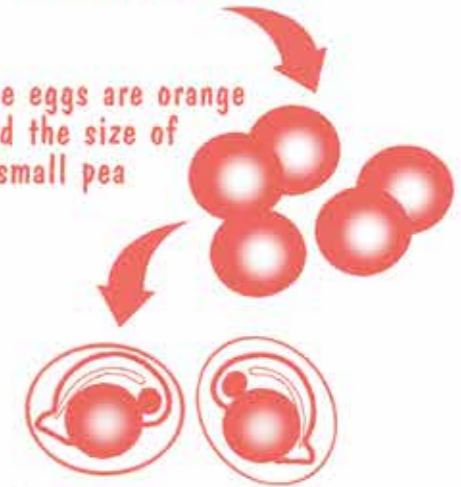
Smolts turn silvery, leave the river and head out to sea.

Adult salmon swim thousands of miles to spawn in the river where they were born



Parr have dark stripes down their sides. They swim in shoals and live in deep pools.

The eggs are orange and the size of a small pea



If they are fertilised with sperm from the male, then the embryo inside develops.



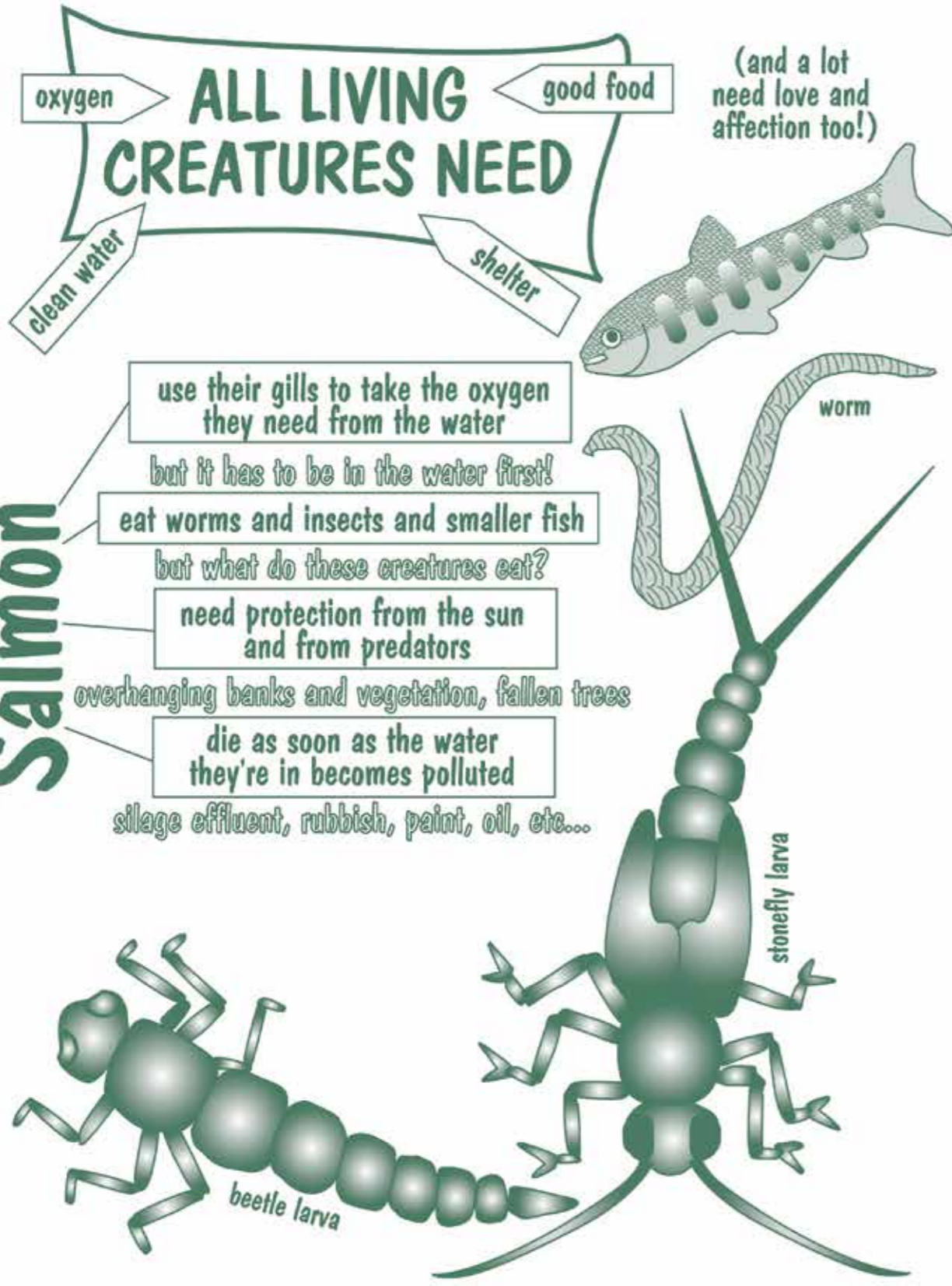
Fry have to find their own food. They have camouflaged, scaled bodies and large eyes.

Alevins have a yolk-sac - they are transparent and live amongst the pebbles on the stream-bed.



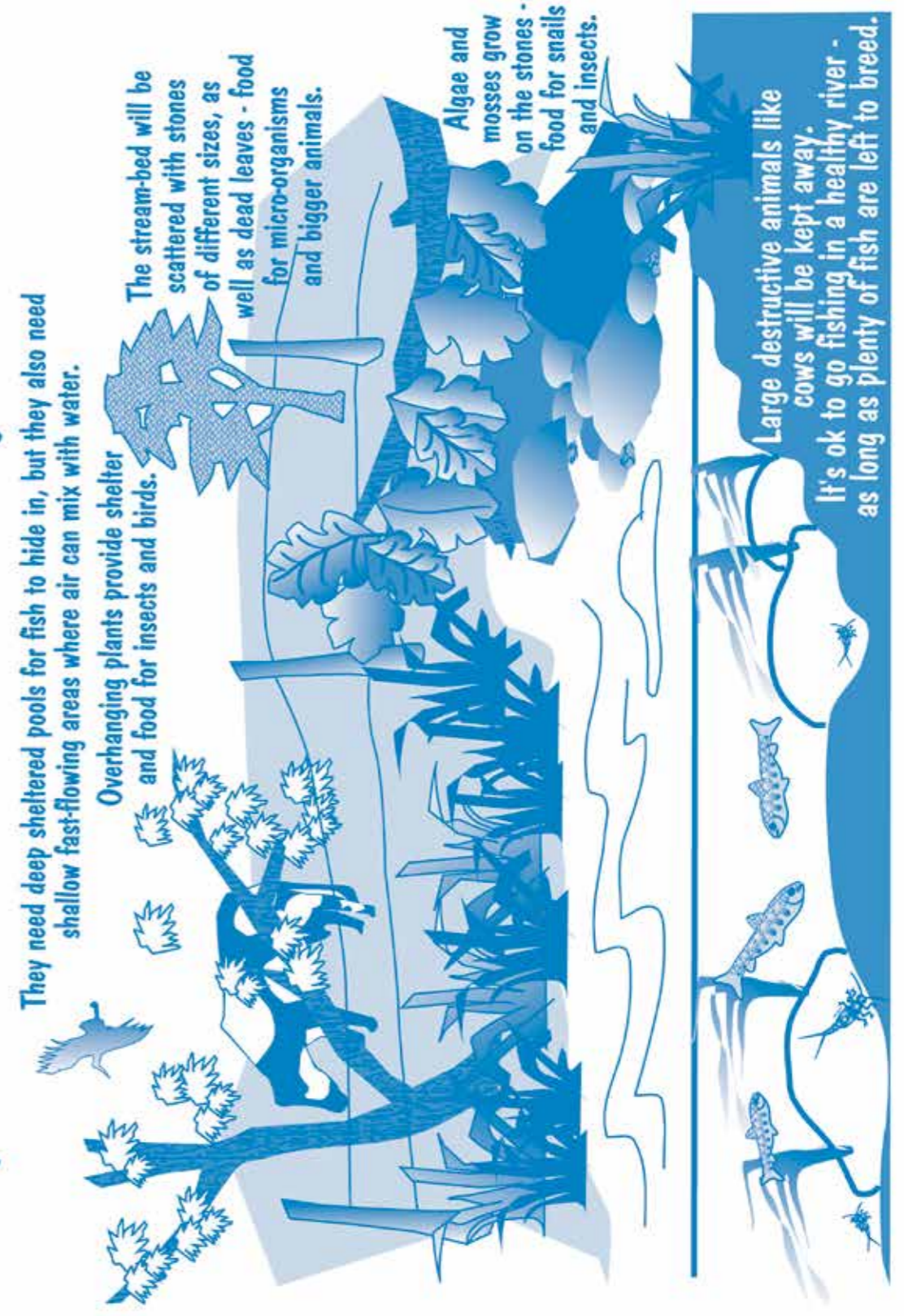
We are interested in Salmon and Trout (the salmonids) because they are the proof of clean water and a healthy habitat (- and they taste delicious too!).

Salmon



Healthy STREAMS and RIVERS

have a huge range of plants and animals living in and around them.

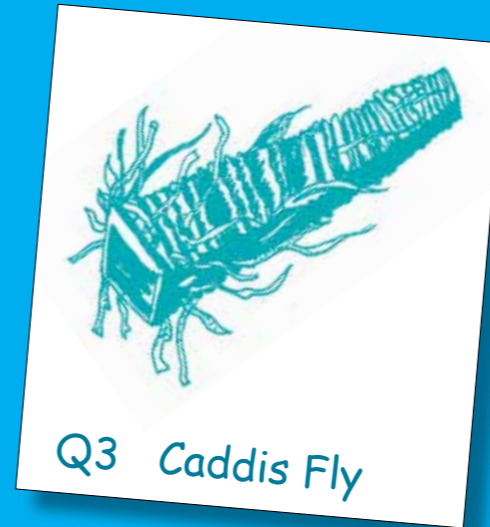
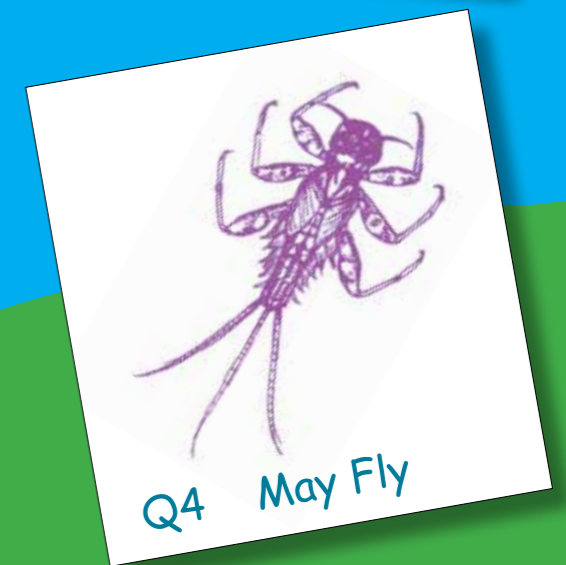
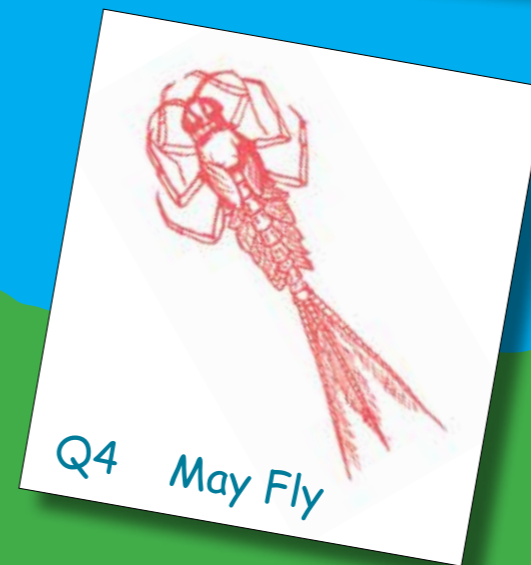
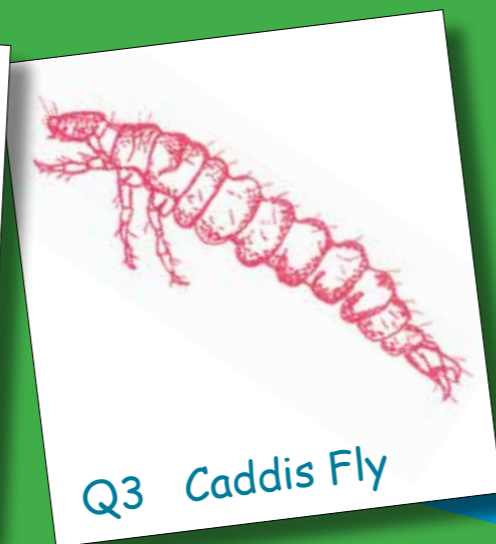
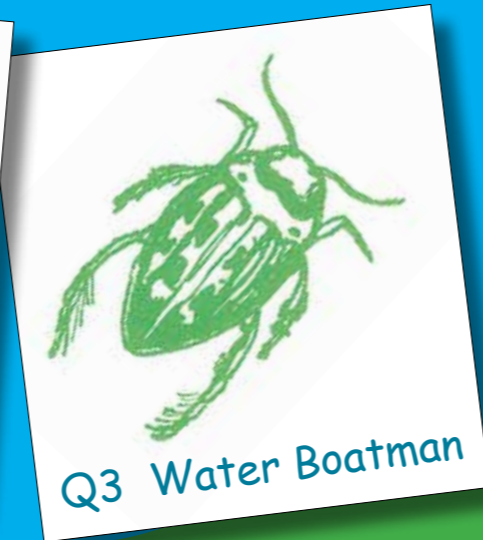
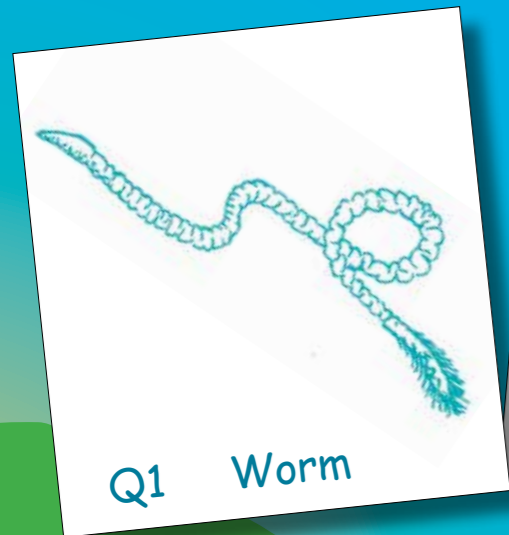


Ilen Bugs

Why are we interested in the Bugs that live in the River Ilen? Because they can show what our local water quality is. If you have participated in the StreamScapes Ilen Project, you would have learned that Water Quality may be placed on a "Q" Scale of Q1 to Q5, depending on what bugs you find in your river survey: with

Q1 = Very Poor Q2 = Poor Q3 = Moderate Q4 = Good Q5 = Very Good

Q1 = Worms Q2 = Whirligig Beetle Q3 = Water Boatman/Caddis Q4 = Mayfly Q5 = Stonefly



What did you find?

Ilen Wildlife

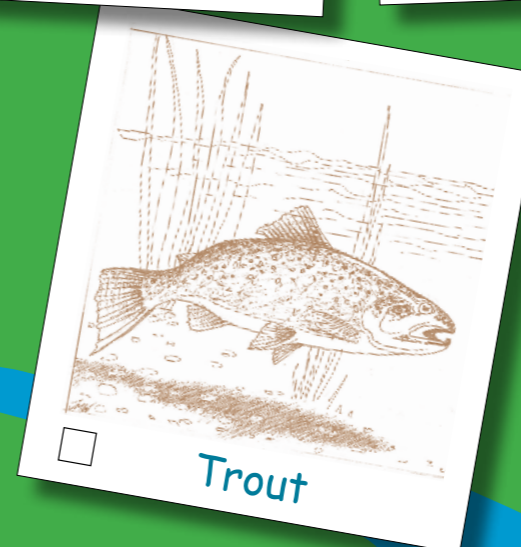
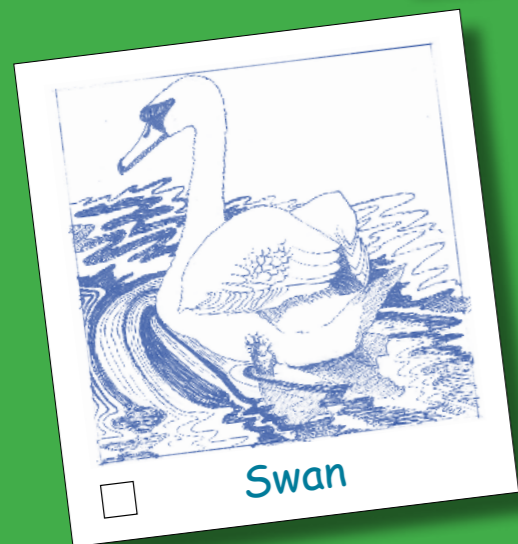
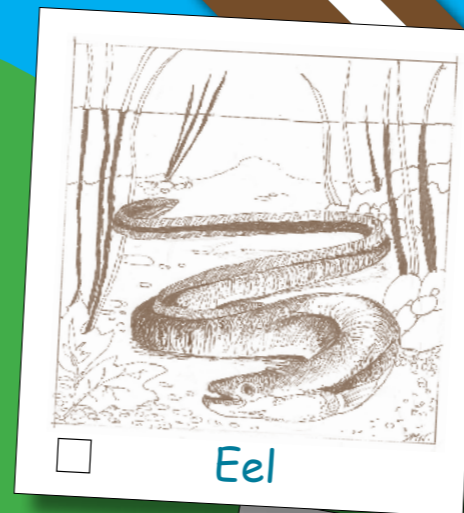
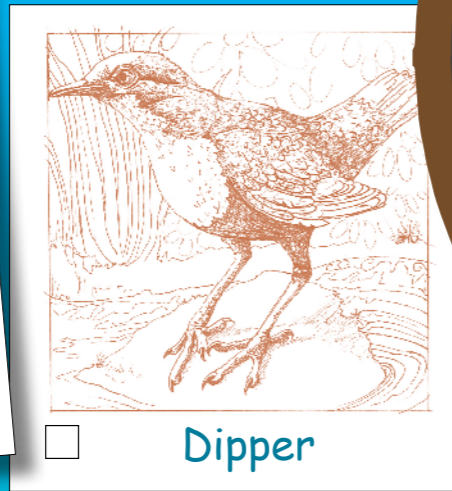
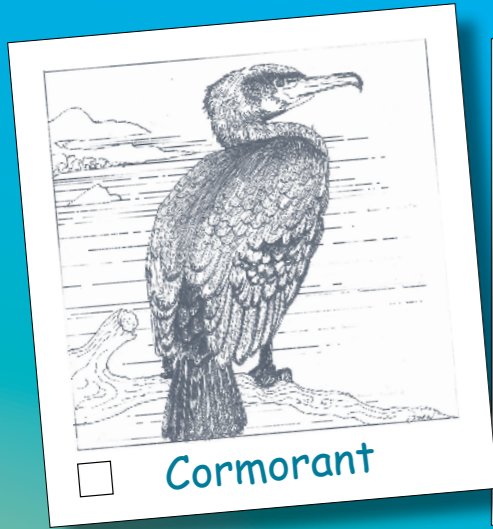
If we can achieve high-quality waters in the River Ilen Catchment, lots of benefits follow. Following are drawings of a few examples of the variety of species which we might see in our River and along its banks.

How many species can you find?

You, your family, school or group may also be interested in a valuable online resource:

www.biodiversityireland.ie

This is the website of the National Biodiversity Centre, which contains a user-friendly database of Wildlife Observation from around Ireland. Follow the instructions in this website to enter your own observations. You may also view local and national data by zooming into the map and requesting the mapping system to display the species which have been recorded in any area.



Principle Habitats of the Ilen River Catchment & Coastal Zone

Springs and streams flow from the steep heather-covered eastern slopes of Mullaghmesha Mountain in the heart of West Cork. These waters, the source of the River Ilen, flow down to sculpt the contours of the countryside.

The Upland Eroding Tributaries (FW1) of the Ilen north of Castledonovan Bridge flow over exposed rock and pebbles as fast flowing streams allow little or no sediment to settle. In the environs of this bridge the largest trout may find the odd pool in which to rest, but the fast-spilling, steep-sided streams provide a difficult environment and only the best adapted invertebrates will thrive.

The surrounding hillsides support **Dry Siliceous Heath** (HH1), which contains communities of ling heather, heath milkwort and tough sedge grasses. As the stream enters the valley we see the first signs of farming with **Improved Agricultural Grasslands** (GA1) for grazing cattle around small farm holdings.

As the river flows on, it bends around to the north and west of Drimoleague town to reach Ilen Bridge (about 3km west of Drimoleague). The river is still fast and has entrenched itself in a steep sided valley, which supports native **Scrub** (WS1) and woodland habitat on either side. This Scrub mainly consists of hazel, though it also includes taller oak and ash trees.

Downstream from Ilen Bridge, the river begins to slow and broaden and its gravel beds are ideal for salmon and trout as riparian **Treelines** (WL2) shade both banks. These Treelines provide dappled light and are home to a myriad of insects that become food for trout if they are blown into the water.

From here the Ilen passes close to the village of Caheragh and slows down as it changes from an eroding upland river to a meandering **Depositing Lowland River** (FW2). The surrounding agricultural farmland has been nourished with the rich alluvium of past floods and provides good quality land for farming.

A slower, deeper, and more tranquil Ilen accepts tributaries, mainly from the east, and continues down as far as the District Hospital to the north of Skibbereen Town where the water becomes brackish. Here the river becomes a **Tidal River** (CW2) under the influence of the Atlantic Ocean and the first seaweeds can be observed. The habitat that now surrounds the river in Skibbereen has been highly modified and is best described as **Built Land and Artificial Surfaces** (BL3).

Heading west from the town along the Schull road one can see the river change into **Estuary** (MW4). The estuarine mudflats are ideal spots to watch wading birds, such as curlews and oystercatchers feeding on invertebrates living in the mud. Inishbeg and Ringarogy islands, north of Baltimore, are the first significant islands in the channel of the river as it enters Baltimore Harbour where the water is fully saline and there is a mixture of channels and islands and complex tidal patterns. Close by is the distinctive marine lake of Lough Hyne; Ireland's first marine nature reserve. Finally, the Ilen is absorbed into the **Open marine water** (MW1) of the Atlantic and here you find the larger islands of Sherkin and Cape Clear. All this in 34km!

Code source: Fossett 2000

What is Biodiversity?

Biodiversity, or "Biological Diversity", refers to the sum total interdependent web of life, from bacteria, microscopic algae, fungi, through to plants, trees, amphibians, fish, birds and mammals - and people!!! If we achieve "best-practice" in pursuit of livelihood, recreation, and household management, we can greatly assist our community's capacity for Biodiversity.



Salmon

Humans and salmon have a relationship which goes back at least as far as the Ice Age...The status of Salmon in local rivers is a great indicator of local environmental quality. When they are present, they are proof that multiple terrestrial, instream, and marine habitats are in balance. This is because salmon depend upon an entire suite of other, similarly sensitive organisms to thrive...Biodiversity!

HOME TRUTHS

The StreamScapes method views our toilets, sinks, baths and showers as Tributaries to our Rivers! What we put in them has a huge capacity to impact on local water quality and Biodiversity. Outside our homes in our gardens and yards we have an equal ability to create or destroy natural habitats. These tips will help restore water quality & biodiversity:

Household Best Practice

- Avoid any Cleaning Products with Phosphates or Bleach - they spoil the good work of your sewage treatment plant / septic tank, leading to aquatic pollution - use "eco-friendly" products!
- Use the minimum of any cleaning product - enough is enough!
- Do not use in-sink food macerators (they put added strain on sewage treatment) - compost your vegetable wastes and use as fertiliser in your garden!
- Any common household product labelled Hazard or Poison or Irritant must be treated as toxic waste when disposing of - follow Local Authority guidelines and do not put in drains!!!
- Keep your garden low-maintenance and low water-dependent, but covered in established sod (and not hard-surfaced) to avoid contributing to peak urban rainfall run-off. Use native plants and trees to establish suitable local habitats.
- Avoid herbicides, pesticides, and application of fertilisers - find natural ways to garden.
- Remember that disturbed ground contributes silt to local water courses - silts are a major enemy of aquatic biodiversity.
- Finally, control your use of water at home and in the garden...treat it as the precious substance that it is!

Don't let Nature go down the Drain!



Produced by the StreamScapes Project

Instream Insects

Did you know that a survey or census of the bugs that live in your local river reveal the environmental quality of the water? Stone flies, mayflies, and cased caddis fly larvae are amongst the most pollution-sensitive aquatic bugs...if you find them in your river it is a good sign! And another good example of Biodiversity in action.



Freshwater Mussels

The study of Biodiversity is full of wondrous stories... the Freshwater Pearl Mussel (FPM), which used to live in most of Ireland's rivers but is now considered extremely threatened, is the longest lived species, living up to 150 years. The microscopic juveniles spend a winter attached to a trout's gill... this is how they migrate. They are very sensitive to nutrient & silt pollution

