

# ENFO Field Guide

## Exploring a River

A stream is a small river, but there's no definite size at which people agree that a stream grows into a river. It just depends on which word the people who live locally want to use. A canal is an artificial river, usually dug out for boats to travel on and carry passengers and cargo.

This is a guide to some of the things to look out for when you're walking along the bank of one of them, with some suggestions about things you can study. It also looks at how rivers, streams and canals affect the lives of the people who live near them.



Inchavore River, Co Wicklow

### **Before your field trip**

#### **Useful equipment:**

- Notebook and pencil
- Pond dipping net and clear glass jars for collecting specimens
- Digital camera for photographing plants, animals and insects (Taking a picture is always better than collecting a sample)
- Hand lens or magnifying glass
- Small aquarium for your classroom
- Wildlife books with pictures
- Wellington boots

#### **Field trip check list:**

- When is the best time to go on the river field trip?
- Which stream, river or canal am I going to explore?
- How will I get there?
- Is the weather suitable for the field trip?
- Am I wearing appropriate clothes (coat etc.) for the trip?
- Do I have all the equipment I need?
- Are there safety issues which could arise during the trip I should consider?
- Have I thought about how I should respect the countryside when on the field trip?

Remember to handle any creatures you collect gently and also to leave them where you found them. Instead of picking wildflowers, you should photograph or draw them.

### Questions to prepare

During your field trip, you will find out lots of interesting things about the plants and animals that live near or in streams, rivers and canals.

What questions do you have about rivers which you would like to answer?

Can you predict the answers to some of your questions before you set out on your trip?

### During your field trip

In the first part of the field trip, you will need to look closely at the river and the river bank and observe as many interesting things as you can.

In the second part of the trip, you can do a number of activities to find out more about the river. The 'Activities' section in this guide will give you some ideas.

### *Look and Explore*

#### 1. Water Plants

There are lots of different plants that grow near water or on the water, although the variety of plants depends on the depth, speed and flow of the water. They can be divided into four main types of water plants.

#### **Plants that grow under the water**

Some, but not all of these plants, grow up to surface level in summer, for example, water lilies. There are two kinds of wild water lily in Ireland. The white water lily has white flowers that are yellow in the middle and float on the water surface. The yellow water lily is much more common. It has smaller, pure yellow flowers that grow on stems above the water.

#### **Look for:**

White water lily



Yellow water lily



Water crowfoot





## Floating plants

There are a small number of water plants that float freely in the water and have no roots in the soil. These plants provide shelter for fish and insects, and help to keep the water temperature down when the sun is strong in the summer, for example duck-weed. The leaves of the duck-weed look like tiny water lilies, smaller than a one cent coin.

### Look for:

Duckweed

Pondweed

Algae



## Plants that grow in the wet ground at the edge of the water

Reeds, rushes and sedges are some of the most common plants to grow near waterways. An example would be reed mace, which many people call bull rush. Reeds help to provide shelter for fish from birds and animals that try to catch them. Reeds also help to prevent erosion on the bank of the waterway. There are also many different wild flowers that like to grow beside water, particularly in the summer.

Rushes, reeds and sedges all grow in the wet ground at the edge of the water.

### Look for:

Reed mace

Rushes

Sedges



Meadow-sweet

Marsh marigold

Spotted Orchid



## Trees

There are some trees that like to grow in the wet ground beside waterways. They are very important in this environment as they help to keep the banks of the waterways from washing away during floods. Trees growing along waterways encourage biodiversity as falling leaves attract insects, which are eaten by birds and fish. Willow trees, also called 'sallies', love such wet, marshy soil.

### Look for:

Alder



Ash (can survive in almost all soil types)



Goat Willow



## 2. Water Animals

### Mammals

Many mammals live near water or in the water. Mammals are warm-blooded animals which have a back bone and feed their babies with mother's milk, like humans.

### Look for:

#### Otters

Otters are large animals with webbed feet that mainly eat fish. They are very shy and usually sleep during the day.



#### Mink

Mink are much smaller and darker in colour and their feet are only partly webbed. They are not as shy as otters and are often out and about during the day.





## Amphibians

Amphibians are another type of animal that live near water. They live on land and breed in water.

### Look for:

#### Frogs

Frogs only live in the water for about one week in the year, during March, when they are laying their frog spawn. The rest of the year they are land animals, but they do like damp places and are often found along the banks. They hibernate during winter.



#### Newts

Newts look like little dinosaurs. They spend more time in the water than frogs, usually several months in the summer. They then crawl out onto the land in the winter and hibernate until the spring.



## Birds

Waterways are ideal habitats for lots of different species of birds. There are plenty of places to nest, such as trees, under bridges, or among the reeds. There is also a steady supply of food, from fish and insects.

### Look for:

#### Dipper



#### Kingfisher



#### Mallard



Moorhen



Yellowhammer



Mute Swan



Grey heron



Kestrel



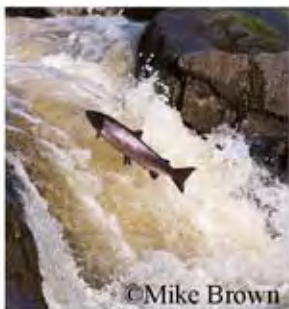
## Fish

There are many different kinds of fish living in our rivers, streams and canals. Some waterways also have freshwater crayfish, which look like small, green-brown lobsters, and freshwater mussels that look like sea-shells.

If you meet a fisherman ask him what kind of fish he has caught!

## Look for:

Salmon



Trout



Eel



Pike



Perch





## Bugs & Beasties

Brightly coloured dragonflies and damselflies are very common along waterways. They spend most of their lives under the water as nymphs (young), before they hatch into insects with wings. They are all predators, which means they eat other insects. The easiest way to tell the difference between them is to watch when they perch on something; the damselfly folds its wings over its back, while the dragonfly leaves them sticking out on both sides.

Look out for pond skaters. These insects use their legs like the oars on a boat to row themselves around on the surface of the water. They eat dead insects that float on the surface.

### Look for:

Mayfly



Dragonfly



Common Blue Damselfly



## Cities, Towns and Villages

Many of our cities, towns and villages are built on the banks of rivers. Canals were usually built to link one town with another. Often it was some feature on a river that attracted people to live there in the first place. Place names sometimes give us a clue to what that feature was.

### 1. Bridges

In the old days, building bridges was quite difficult. There were some places on a river where it was a bit easier to build however, for example if there was a very narrow part of the river. Bridges were built at these narrow points and towns grew up around them.

For example, Newbridge in Co. Kildare and Drogheda (Irish: Droichead Átha meaning bridge of the ford) in Co. Louth.



Boyne Bridge, Drogheda

## 2. Fords

Before bridges became common in Ireland, fords were very important places. Rivers were very shallow at fords and people and horses could easily wade across them. Sometimes they were made more shallow by adding stones or branches to the riverbed.

Some examples are Athy (Irish: Baile Átha Í, meaning town of the ford of Ae) in Co. Kildare, and Athlone (Irish: Baile Átha Luain, meaning town of Luain's ford) in Counties Westmeath and Roscommon.



Athy, Co. Kildare

## 3. Watermills

Watermills were very important places in the old days. The power of the water was used to drive machinery. Watermills were mainly used to grind up corn to make flour, but they were also used to make cloth, saw timber into planks and even grind gunpowder. Villages and towns often grew up around mills.

Examples are Mullingar (Irish: An Muileann gCearr, meaning the left-hand mill) in Co. Westmeath and Mullinavat (Irish: Muileann an Bhata, meaning the mill of the stick) in Co. Kilkenny. A place with a mill and a ford was particularly important. There are towns or villages called Milford in counties Carlow, Cork, Donegal and Limerick.



Alexander Mill, Milford, Co. Carlow

## 4. Estuaries

The place where a large river meets the sea is known as an estuary. It was a very important place for people to gather and live. Ireland is an island and, before the invention of aircraft, all foreign travel and foreign trade was by sea. The goods and passengers from abroad often travelled inland in smaller boats on the river.

Dublin, Cork, Galway and Waterford are all major cities that were built where large rivers meet the sea. Can you name the four big rivers which meet the sea in these counties?



Spike Island and Cork Harbour



## Transport

All the canals in Ireland were built before engines were invented. In the old days, the boats were pulled by horses. The canal builders made paths along the banks for the horses. Some of these have now been turned into roads, however others are walking paths. While canals often have roads along the banks, it is less common for a river to have a road all along its bank. This is because there is a danger of the river flooding the road after heavy rain. However, canals don't flood. This is because each lock, or section, on the canal is at a different level. If there was too much water in one lock, it would overflow into the lower section. This would continue until it meets the river it links with, or an overflow area that allows excess water to flow into a nearby stream.



Part of the map of Irish canals in 1902

Before the railways were built, and when roads were narrow, rough and often very muddy, boats were very important for moving passengers and cargo around the country. They travelled around the coast and also on lakes and rivers. Rivers were often deepened and rocks taken out of them so that bigger boats could use them. In places where a river was very shallow or rocky, a short canal was often built to get around the difficult spot. These are called lateral canals. The best examples of lateral canals in Ireland are on the River Barrow.

Of course rivers don't always go to the places people want to go! Long ago, people dug canals to get to these places instead. Canals use locks to go either up-hill or down-hill. The lock chamber can be filled with water, or emptied, to float the boat to the new level.



Lock gates on the Royal Canal



The lock gates, Athlone

Nowadays canals and rivers are not used to carry paying passengers or cargo because we have railways and much better roads. Canals and rivers are very popular tourist areas

## Activities

- Go pond-dipping! This means using a net to catch some of the small creatures that live in the water. You can use a children's fishing net, although there are special pond-dipping nets that are better. Put your catch into a clear glass jar to have a look at it before you return it to the water. You could also make a drawing or take a digital photograph so that you can try and identify it after your field trip.
- Set up a small aquarium in your classroom. Put some of your catch into it so that you can watch how it moves and eats. Make sure to put some water plants in your aquarium to provide oxygen.
- Make a list of all the water plants you know along a short stretch of the bank. Take digital photographs of the ones you don't know and try and find out what they are by using the internet or books in your local library.
- Use the internet or your local library to try and find out the meaning of place names near you. Do some of these place names mean 'lake', 'river', 'ford', 'bridge' or 'watermill' or perhaps another type of water feature?
- Find out if the river or canal near you was once used to carry cargo. Can you find out the type of cargo that was carried on it?



Lock gates on the Royal Canal



Lock gates in Athlone



### Extension activity

Once you have studied one type of waterway, you may also choose to study a different type of waterway in another location. You may find that there are differences between what you find at a small stream, a big river and a canal.

- You can compare the different plants, birds, animals and insects which you find at each different waterway.

- You can also examine the differences in size of the waterways and the type of environment that surrounds them. Is there farmland, woodland, meadows or bogland nearby?

Remember, if you are comparing different waterways, you will need to study both waterways at the same time of the year. Your findings in a waterway will change according to the time of year.



Stream



River



Canal

### After your field trip

#### River Report

You have learned a lot about the different types of waterways in Ireland and how they are used. You have also found out about the different plants, animals, birds, fish and insects that live in or near the waterway you explored.

Put all your photographs, drawings and records of the different plants and animals you found into a folder to create a report.

By creating a report on what you did and what you found on your field trip, you will be able to use it to compare changes along the waterway at different times of the year. This will help you to find out what difference the season makes to the type of plants and animals you may find.

**Focus: Environmental awareness and care****Question:**

How can we help to protect our waterways?

**Suggestions:**

- Instead of picking a flower or plant, always take a photograph or draw a picture of it instead.
- Never move aquatic (water) plants or animals from an aquarium or fish tank to a river, stream or canal e.g. mosses, algae, goldfish, shellfish. They may cause damage to the native species already living in the new environment.
- Make sure to collect all your belongings and rubbish before leaving the waterways. Pollution damages the wildlife and the water.

**Share your learning with others**

You can share your field trip findings, including your project and report, with others on the ENFO website. On [www.enfo.ie](http://www.enfo.ie), just click on 'ENFO Kids' and you will find the Water Habitats section under the heading 'Where We Live'. You can display your project on any page in the Water Habitats section by clicking on the Upload button on the page and filling in the details. You will be able to upload text, photos, audios and videos.

**The Exploring a River Field Guide was written by writer, broadcaster and environmentalist, Dick Warner.**