The Water Forum

AN FÓRAM UISCE

Using Digital Maps to Explore Local Water Resources

Student's Workbook

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Lesson 1

Finding your Local River

In this lesson you will be shown step-by-step how to find your local river using free online resources.

Requirements for this Task

- Internet
- Use of a laptop & mouse

Background

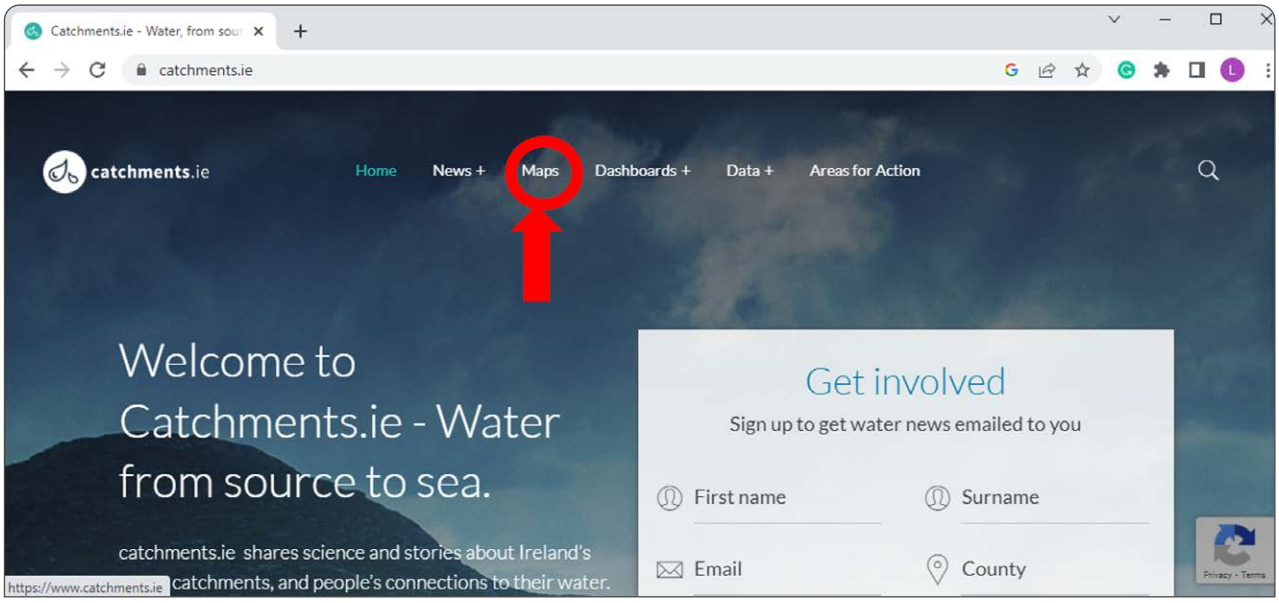
Knowing how to use a map helps to inform you of what is around you. Maps use colour, symbols and lines to represent the features, e.g. rivers, roads, towns and mountains of an area. Being able to read a map and extract information allows you to visualize what things on the ground look like, distances between different points and the area size of a feature

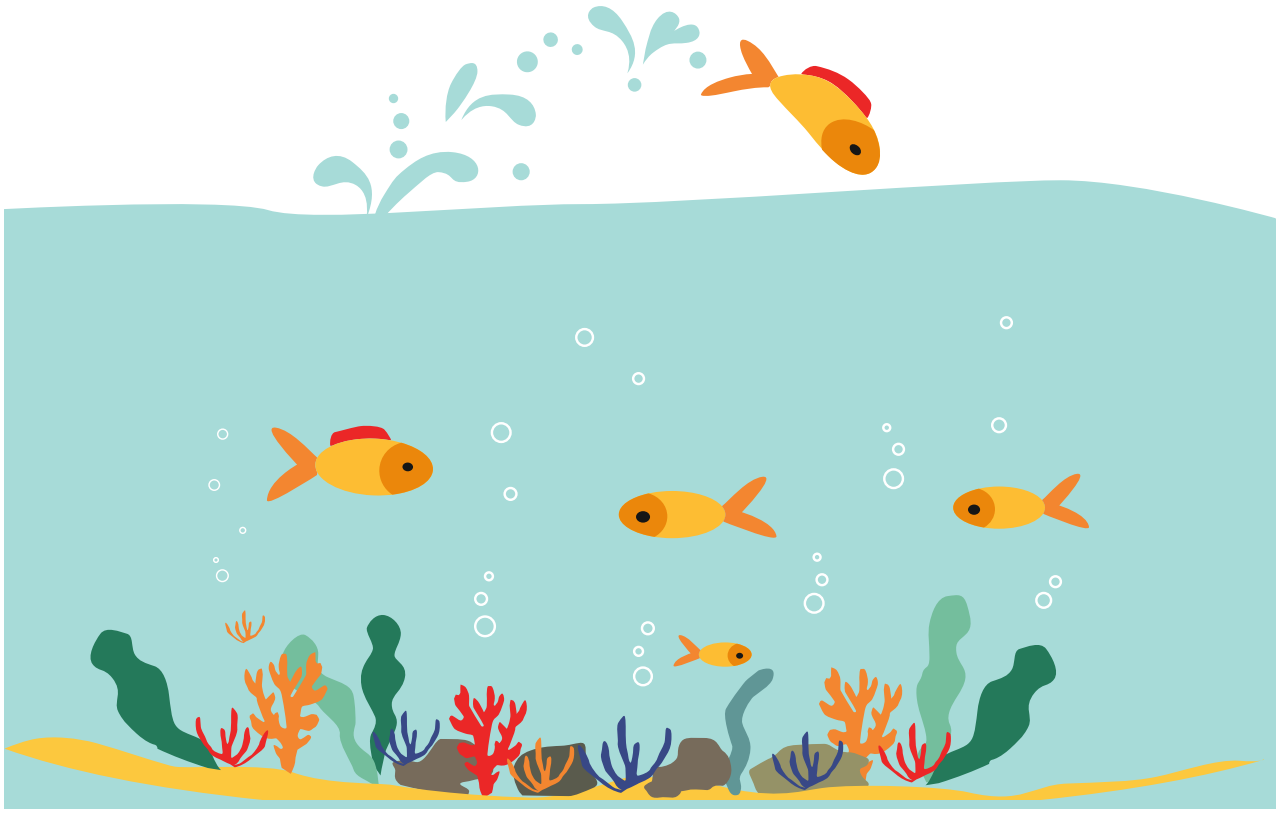
The Environment Protection Agency in Ireland (EPA.ie) provides a free online mapping resource to allow anyone find out more their local river, lake or coastal areas.

Task 1.1 - Finding your local rivers

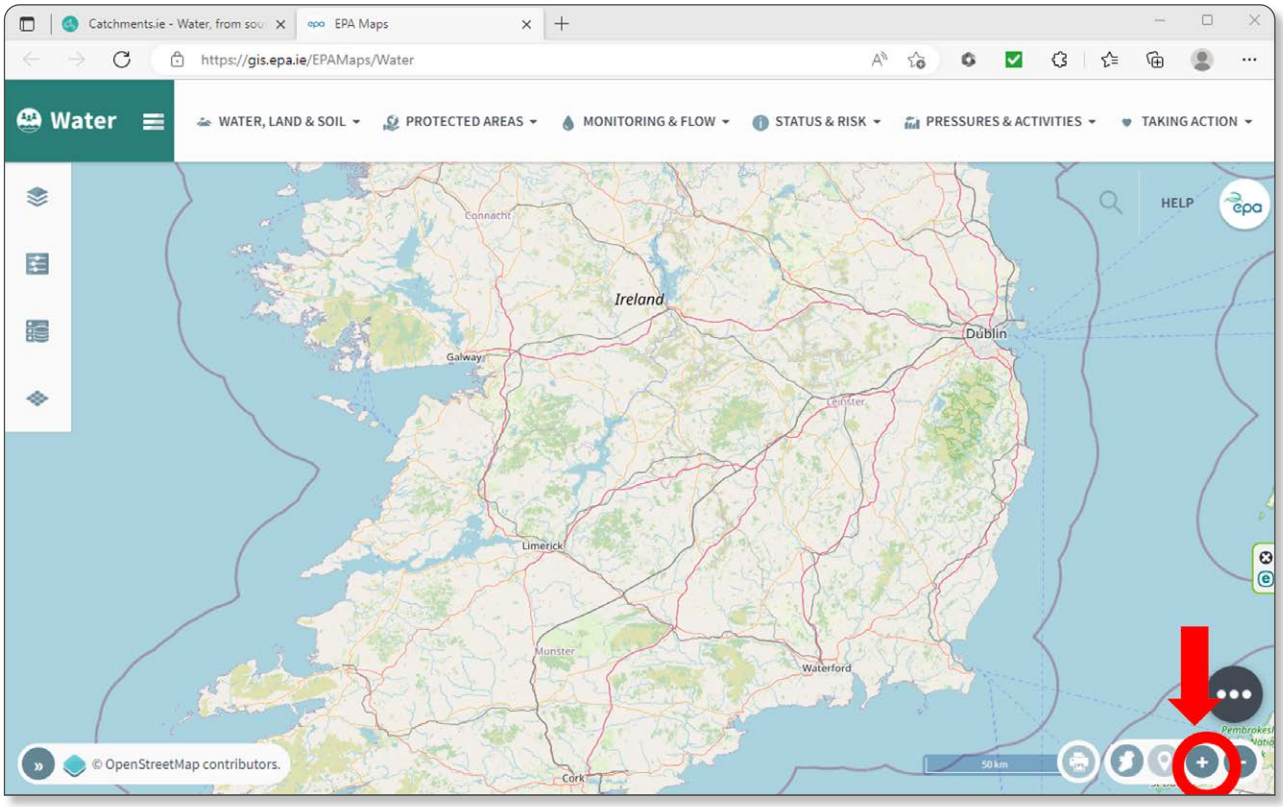
This task should ideally be done a laptop or desktop computer.

1. Log on to the https://www.catchments.ie website and click on Maps

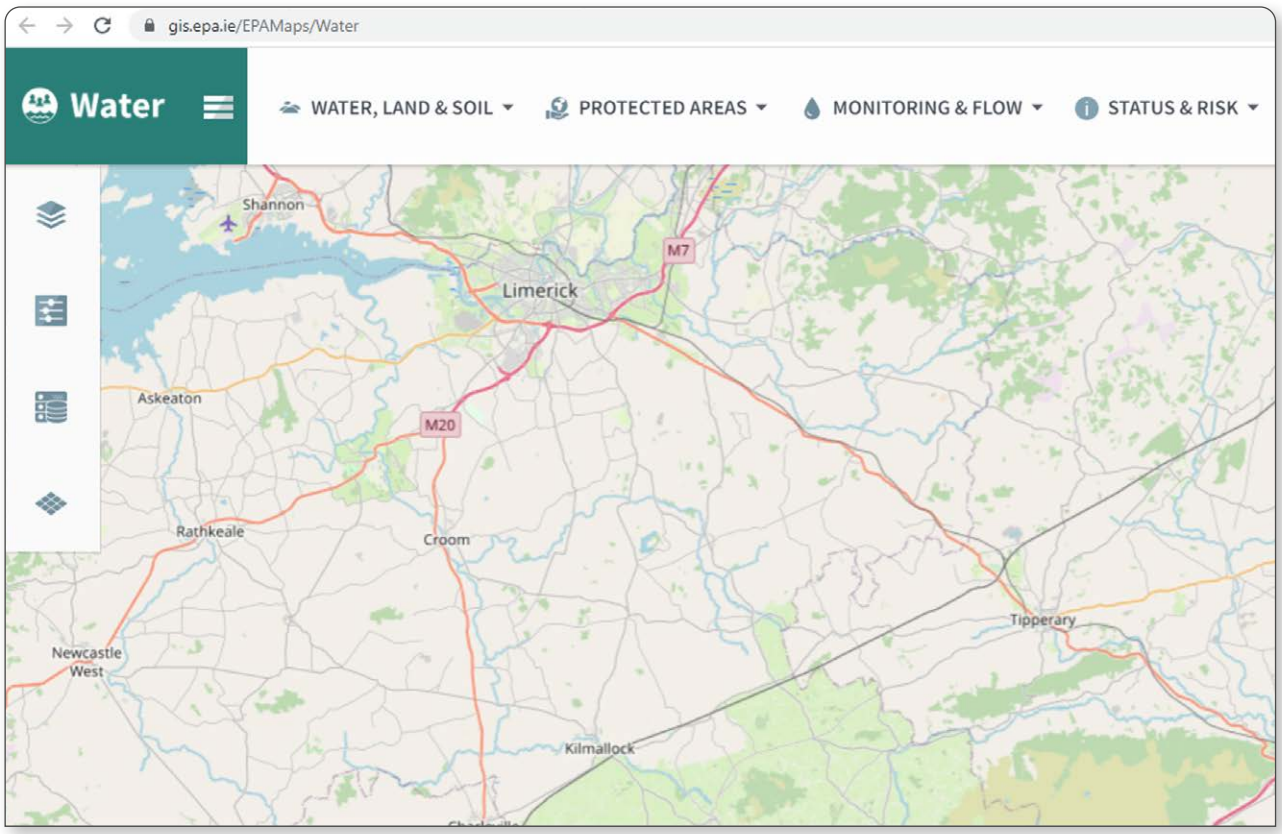




2. Using the '+' button on the screen, or with a mouse scroll wheel, zoom into your county. Locate your location on the map by left clicking, holding down the mouse and dragging your target area to the centre of the screen.



Zoom in to your county, e.g. Limerick or Tipperary.



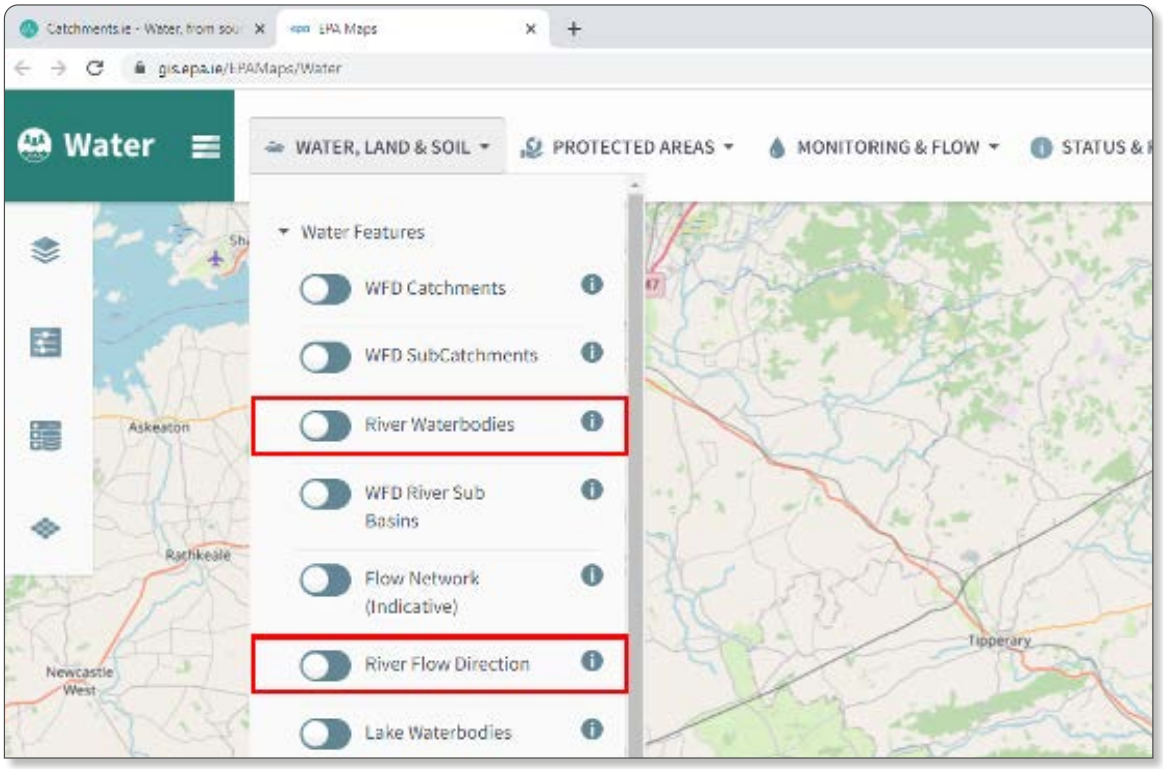
For workbook demonstration purposes, we are going to focus on Tipperary town.

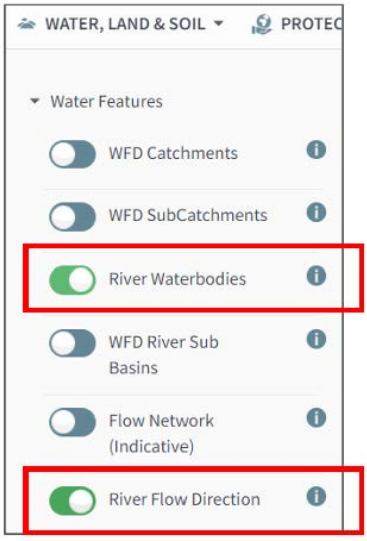
To find the local rivers near Tipperary town, you will now learn how to use more of the catchment.ie features.

3. On the top bar of the screen:

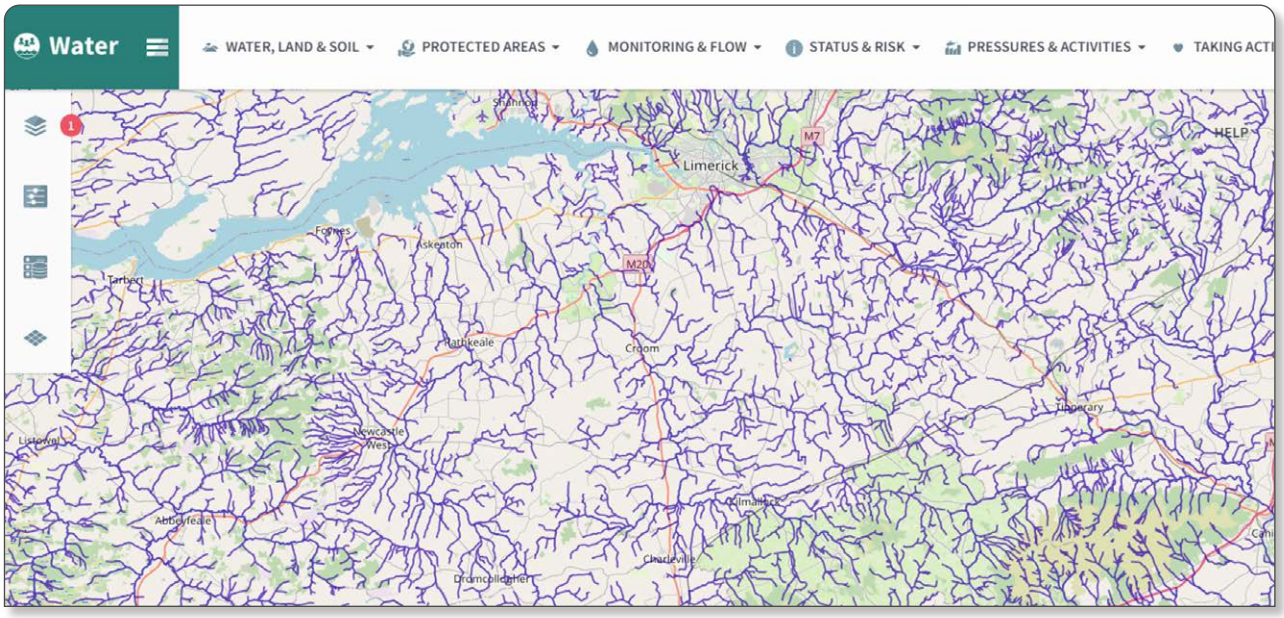
a. Click on **WATER, LAND & SOIL**

b. Select **River Waterbodies** and **River Flow Direction** by sliding the button across. It will turn green, see Figure below.





Your screen will now look like below. All the purple lines represent all the streams and rivers in the area.

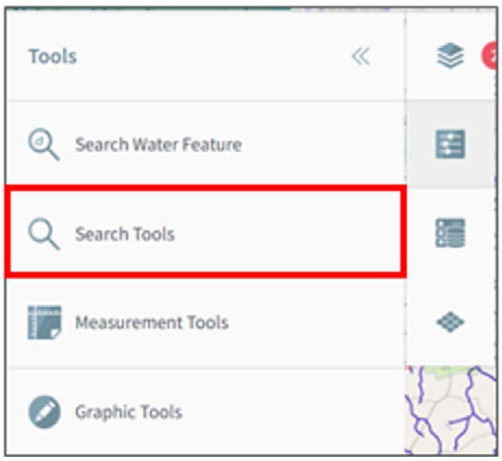


4. To search for rivers and streams in your area,

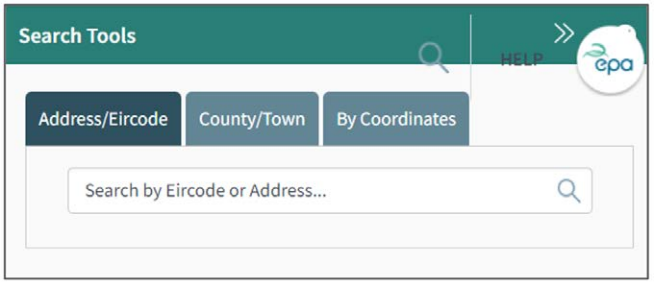
a. Go to the icons on the far left of the screen, use your mouse to hover over the second icon and click on Tools (Figure above).

A Tools pop-up (Figure below) will appear

b. Select "Search Tools"



c. In the Search Tools pop-up (Figure below) enter your school address or eircode.

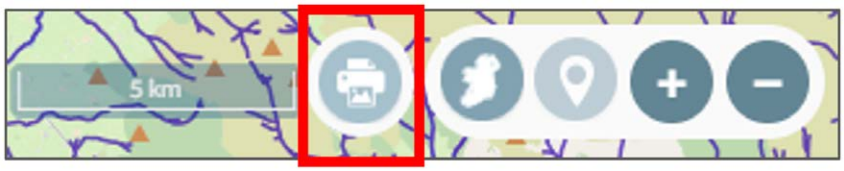


The EPA Map will zoom into the eircode area to a 50m detail.
(The magnification value is visible in the bottom right-hand corner, see Figure below)

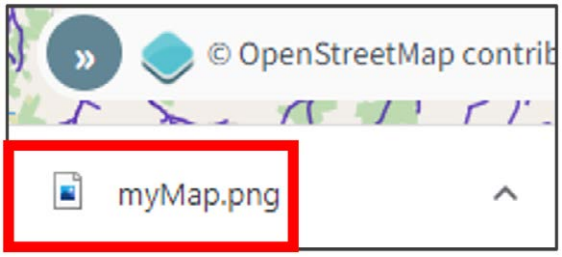
Zoom out to 500m or 1000m; the blue lines with the small arrows represent the water courses

Each river is labelled. In Tipperary town there are two water courses:
The Ara and The Fidaghta.

5. **To save the map of the rivers near your school, click on the printer icon in the bottom right-hand corner.**



Don't worry, you will not be asked for a printer, the catchments.ie app will create a myMap.png file that you can see in the bottom left-hand corner of the screen.



If you are using a Windows operating system, the file will probably automatically save to the Downloads folder. Save a copy of the file to somewhere you can access again.

6. Use the steps above to find the rivers or streams closest to where you, your cousins and friends live and write down of the river names below

River/stream closest to my school:

River/stream closest to my home:

River/stream closest to my friend's home:

7. Find and list your county rivers below

Task 1.2 – Draw your local river

Draw an outline map of the local river below and use Google map and your catchments map to locate and mark in the towns and villages the river or stream runs through. Remember to give your map a title and label key features, e.g. river names. *If your closest river runs through multiple counties, choose a section of the river to map.*

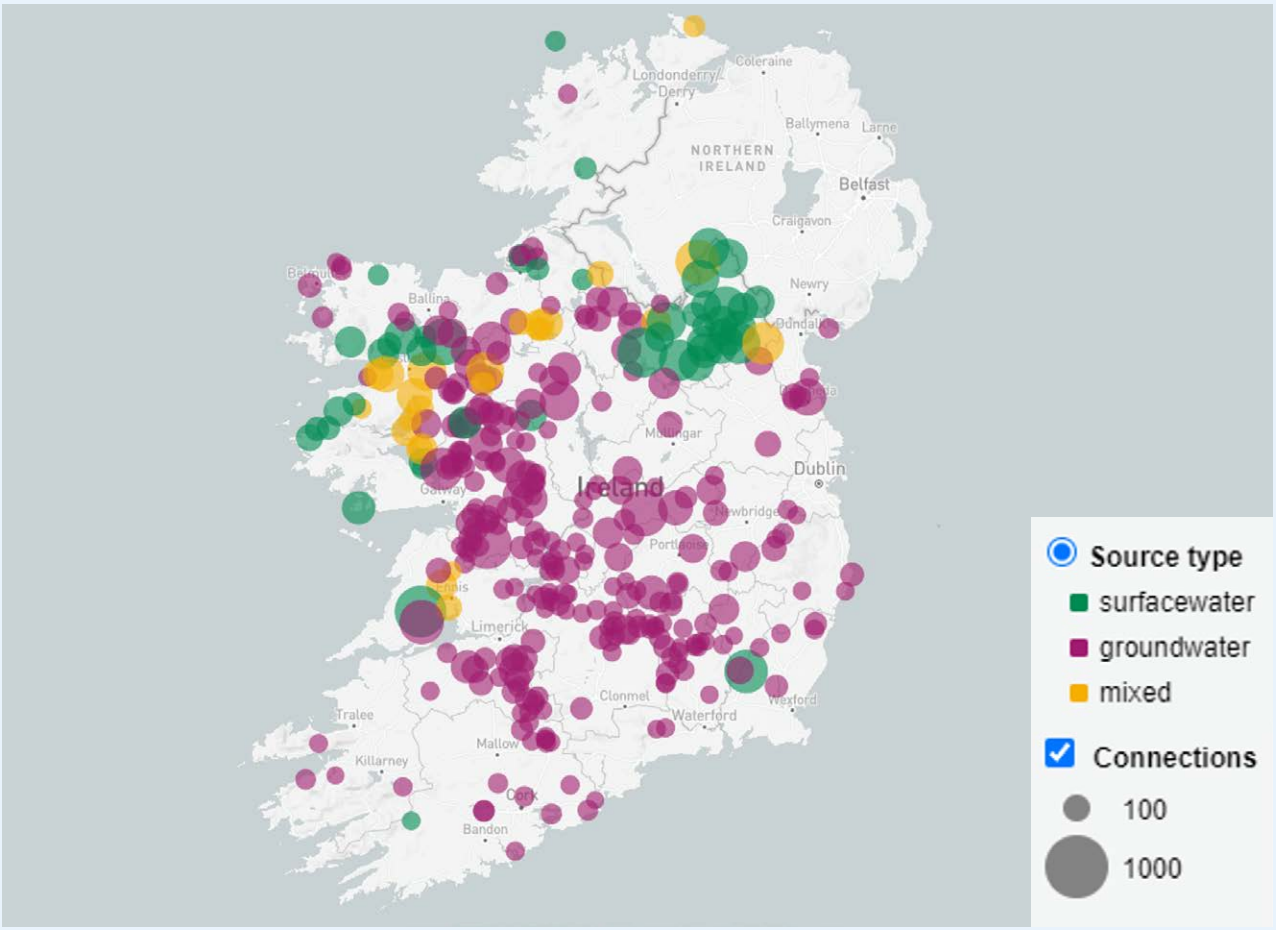
- 1st identify on the map the source (also called the headwater) or river starting point location of the river.
- 2nd identify on the map where the river enters the sea or joins the main river.
- Mark in the villages and towns the river passes through.
- Mark in other features, e.g. old mills, water amenities, bridges, etc.
- Create a map that tells the reader what they can expect to see along the river.

Lesson 2

Local water supply

Uisce Éireann (Irish Water) is the public body with responsibility for supplying drinking water and wastewater services in Ireland. They provide drinking water to 4.2 million people, 87% of the population. Each day, they provide 1.7 billion litres of drinking water from nearly 539 water supply zones, treated at 749 water treatment plants and distributed through 65,000km of pipelines. Uisce Éireann provide a great deal of information about what they do on their website www.water.ie and education material on how they source and process drinking water.

In addition to Uisce Éireann, there are private group water supply schemes in mainly rural areas. Some group water schemes supply over 1000 homes. The National Federation of Group Schemes is the representative organisation for community-owned group water schemes in Ireland. The Federation works in partnership with Government departments, Local Authorities and other state and non-state stakeholders to ensure that the group water scheme services meet the highest standards in terms of water quality and consumer service.



Source: https://nfgws.ie/wp-content/uploads/2020/07/gws-map.html

Task 2.1 – Drinking water treatment

Watch the Uisce Éireann video to find out how water treatment happens

The Water Treatment Process | Irish Sign Language | Water Treatment | Irish Water - YouTube

Uisce Éireann also have an interactive webpage www.water.ie/help/supply/cloud-to-glass where you can follow the water treatment process. Or click on the short **@OfficialIrishWater** YouTube video – **The Story of Water** https://youtu.be/aydrk3cK7o8 **(1min)**

Check your recall of what you just watched and number the water treatment stages in the correct sequential order

UV Disinfection and Chlorination	
Screening	
Filtration	
Floculation	
Clarification	
Storage	
Coagulant	
Quality Testing	

How many days does it take to treat water to be fit for human consumption?

If your water supply is from a groundwater source the water treatment it usually only requires disinfection for micro-organisms via chlorination and/or UV treatment.

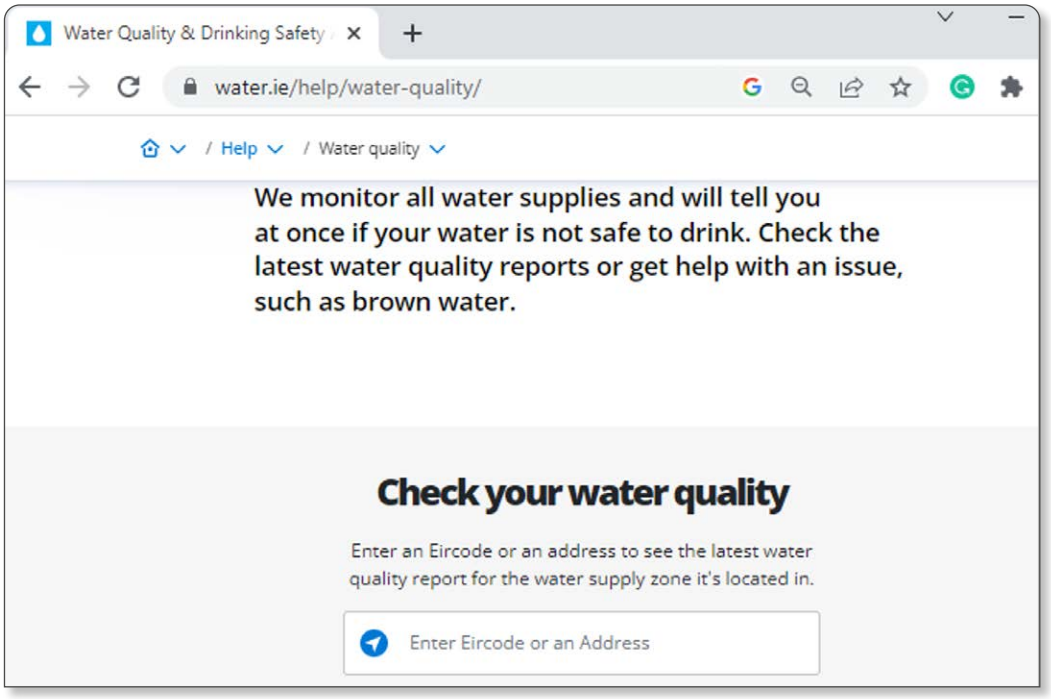
How does UV treatment work?

This YouTube video https://www.youtube.com/watch?v=fmjYF7zoBO4) explains UV treatment

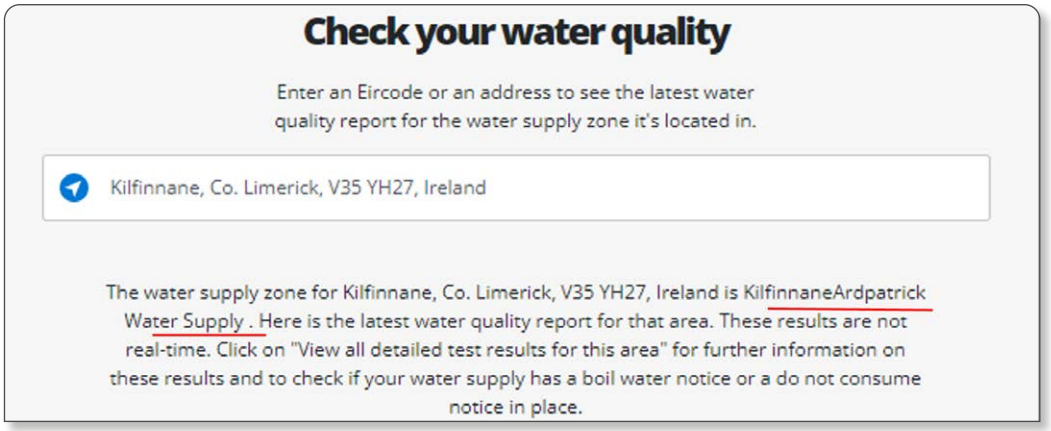
UV treatment

Task 2.2 - Where does your school water supply come from?

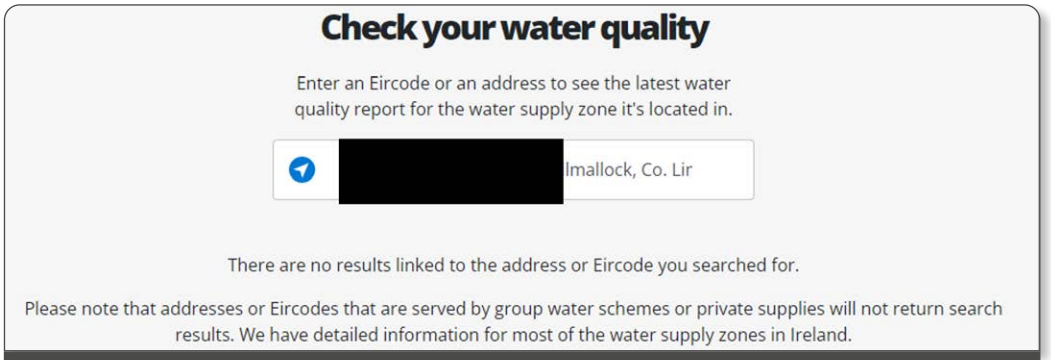
Go to https://www.water.ie/help/water-quality/ and Check your water quality by entering your school Eircode or address.



Sample answers



Or



Note – The message when the address is connected to a private water supply.

Task 2.3 - Class Discussion – How we use drinking water

1. What do you use drinking water for at home?

a) Is this a good use of treated water (expensive)
b) What are the alternatives to piped drinking water for non-human ingestion uses?

Notes

2. Should people be charged for water?

Notes

a. What are the advantages and disadvantages of water charges?

Notes

Lesson 3

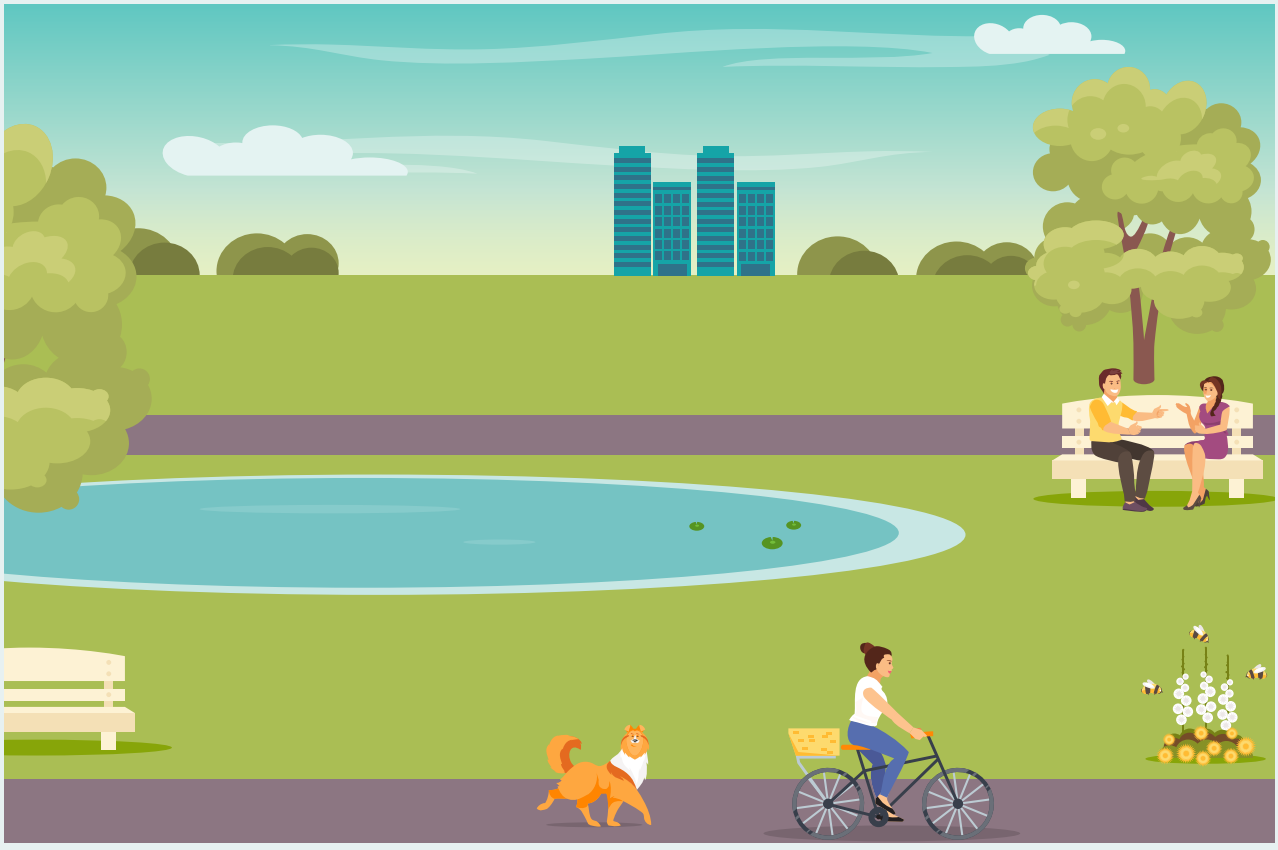
Wastewater Treatment

All living creatures produce waste. Humans produce urine, faeces and sweat and all that waste is mixed with water and flushed away down our toilets, sinks and showers into sewer pipes. Sewer pipes carry the wastewater to treatment plants or septic tanks for treatment where the pollutant materials are removed, and the treated water is safely discharged back into the environment.

As well as ensuring public water supply, it is also Uisce Éireann responsibility to make sure that public wastewater is treated correctly to protect our health and the environment from polluting waste discharges. The Environment Protection Agency, **EPA**, is the government authority that gives the licence to operate a treatment plant, and monitors the compliance with Irish and EU Urban Waste Water legislation.

In rural locations, many homes are not connected to public sewers and have septic tanks to manage wastewater. There are approximately 490,000 septic tanks in Ireland and it is the responsibility of the home owner to make sure their septic tank does not pollute the local waterways. The local council has the responsibility to carry our septic tank inspections to ensure they are working correctly and not causing pollution.

The next task will help you find you your local wastewater treatment plant.



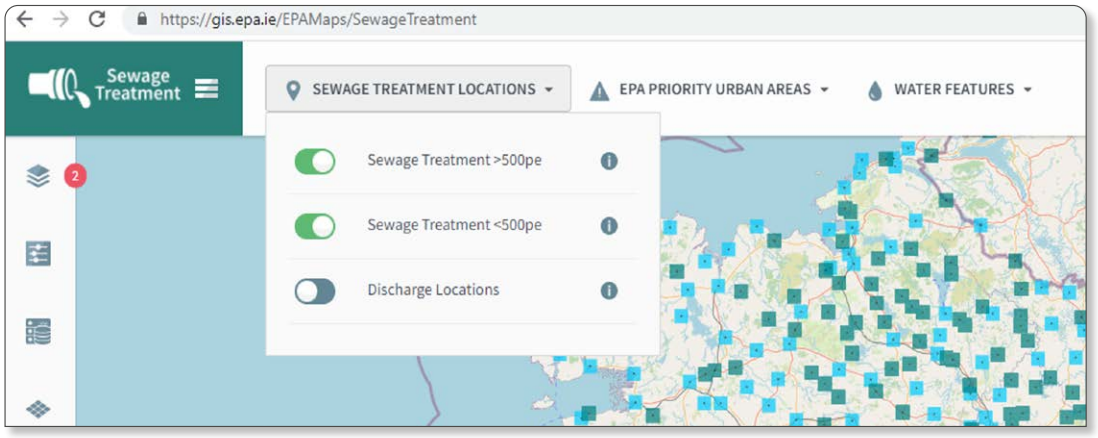
Task 3.1 – Find your local wastewater treatment plant

This task should ideally be done a laptop or desktop computer.

Step 1. Go to: https://gis.epa.ie/EPAMaps/SewageTreatment

Step 2. Click on SEWAGE TREATMENT LOCATIONS

Step 3. Turn on the "Sewage Treatment >500pe" and "Sewage Treatment <500pe" options

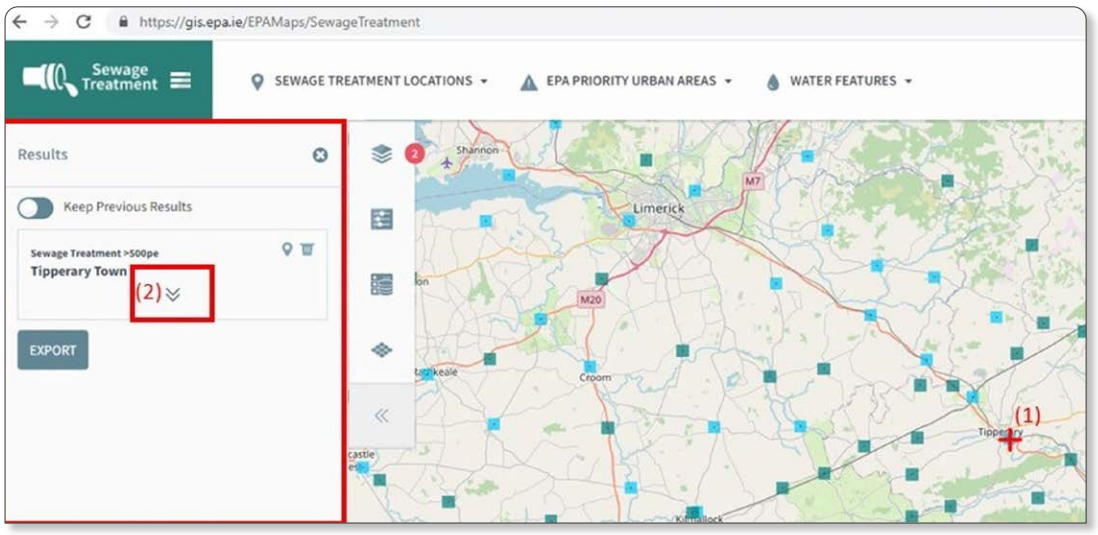


Step 4. Zoom in to your county to see the location of treatment plants

Step 5. Click on a local treatment plant, e.g. **(1)** .

A **+** will appear, and a Results panel will appear on the left.

Step 6. Click on the down arrows **(2)** for a report.



A brief report (similar to Figure on the right) will appear.

There is a lot of information here that you can investigate further.

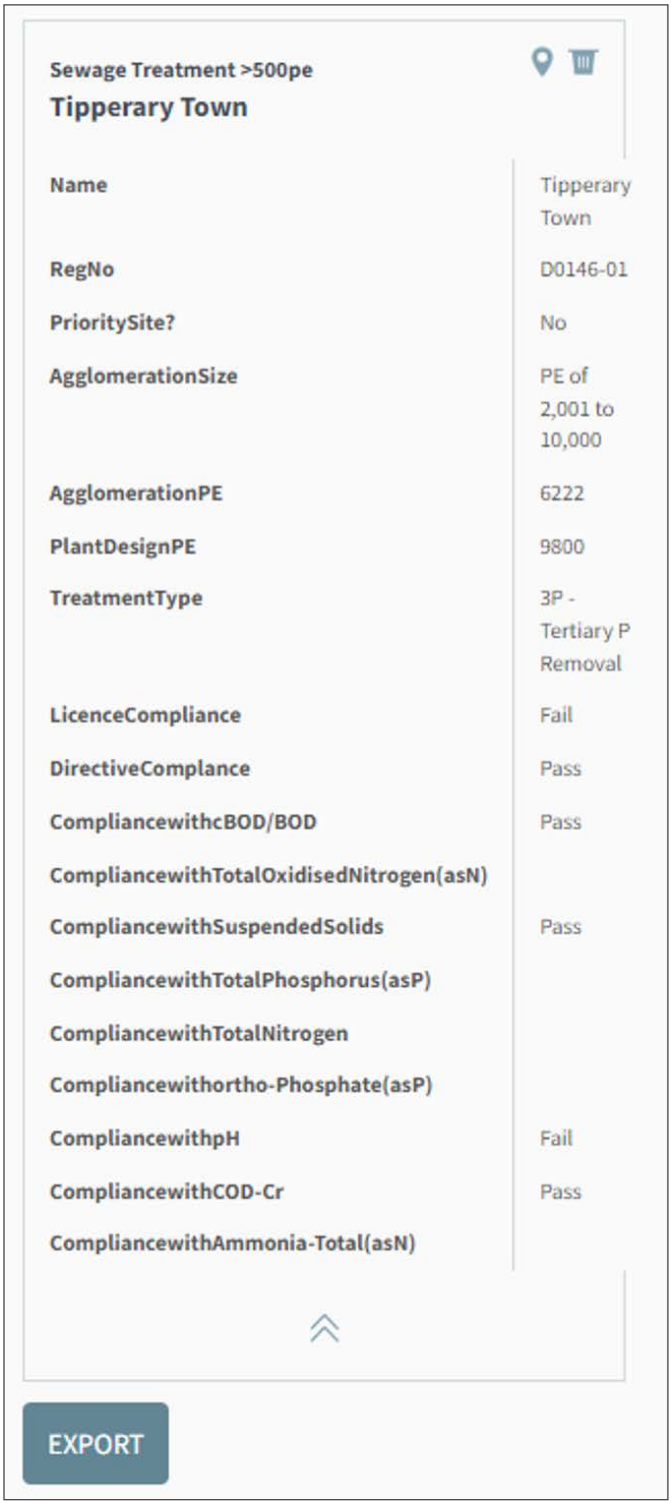
Key information:

- **Treatment Type**
- **Licence Compliance***
- **Directive Compliance***

Step 7. Export the report to save.

***Licence Compliance** refers to the treatment plant meeting the EPA standards set out in the Irish and EU Urban Waste Water legislation. The EPA licence for a plant may be more detailed and may specify additional treatment standards where needed in order to protect the environment.

***Directive compliance** refers to the EU Waste Water Directive.



Task 3.2 – Class discussion - What is a fatberg, and how can we help prevent them?

- Do an internet search to find out about "fatbergs"
- How can you help prevent fatbergs?

- To find out more about what you can do to help the environment go to Clean Coasts webpage https://thinkbeforeyouflush.org/

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