

How healthy is our Local Deansgrange River?

Citizen Science @ Rockford Manor

By Ananya, Eve and Sarah



Our School

Rockford Manor is a secondary school located in Blackrock, County Dublin. Our school is a Green-School (Eco-School) and is located in an urban setting next to a busy road and roundabout.



Why Study River Health?



Students at Rockford Manor have a great interest in the environment and in citizen science.



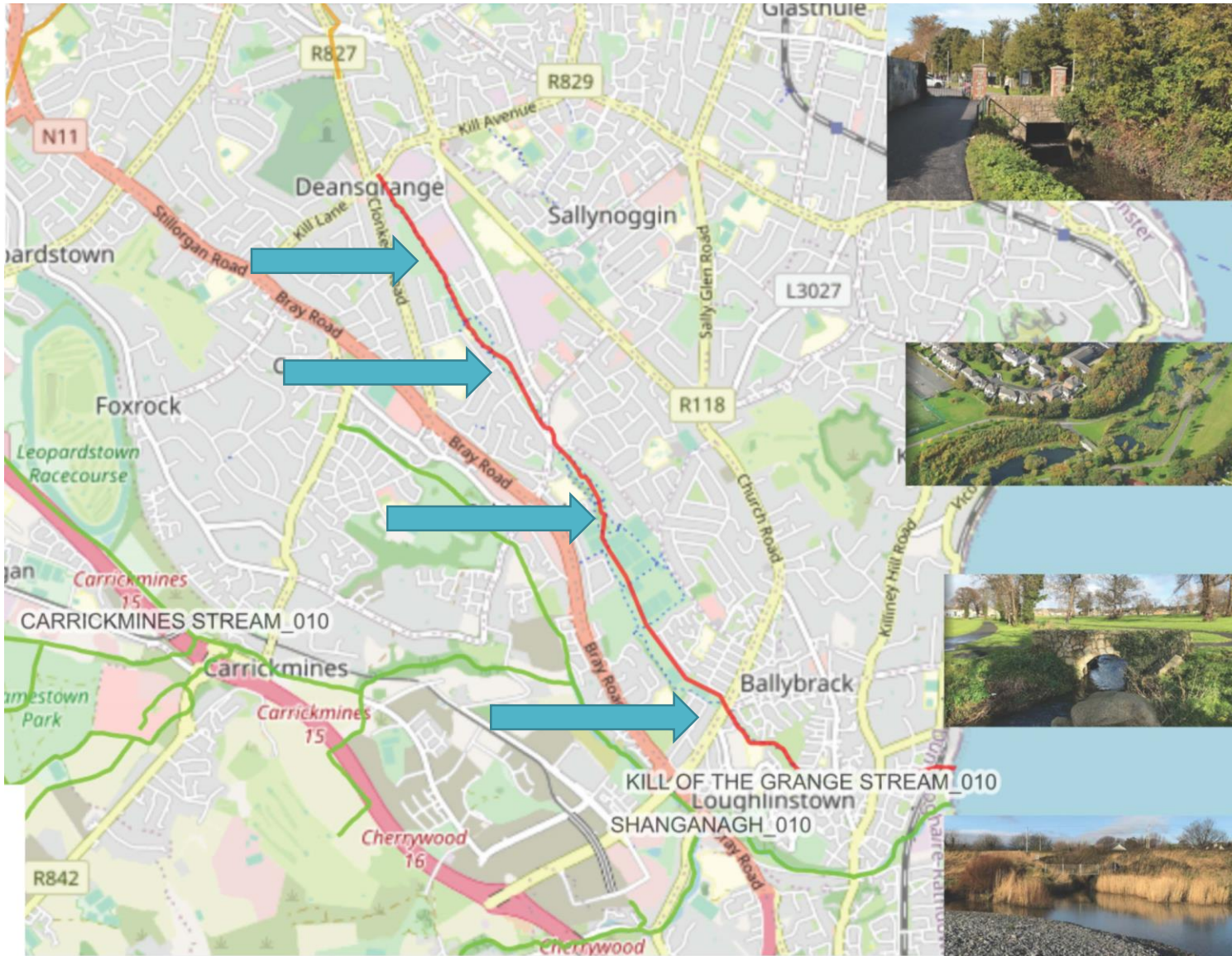
We are passionate about working towards our sustainable development goals.



EPA assessments have shown that about half of the surface water bodies in Ireland are not as ecologically healthy as they should be.

We would like to investigate the health of our local river as it plays an important role in our local environment.

Deansgrange river - Our local river



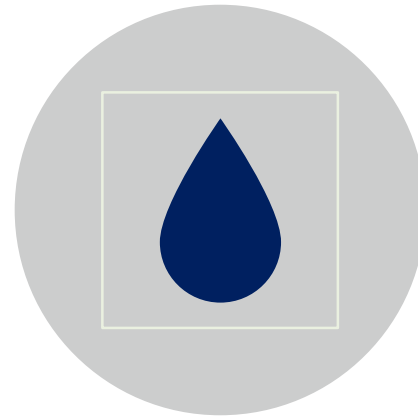
- 2 km from our school
- Situated in urban park
- Surrounded by mix of residential, retail & industrial properties



Methods



VISUAL INSPECTION



RIVER WATER
QUALITY



KICK SAMPLE



Visual Inspection

Students took time to walk quietly along the river to observe and record the following details in their worksheets.

The type of waterbody, width and depth.

Visual appearance of the water and the local habitat.

Flora and fauna of the immediate area.

River Water Quality; Snapshots of Chemical Properties



Bucket & rope used to collect water samples.
Bucket rinsed 3 times
River bed not disturbed



Water temperature and pH was measured and recorded.
Repeated 3 times



Nitrate and phosphate test kits were used along with comparator color charts to determine nutrient concentrations.

Chemical tests



pH	Color
9.0	Light pink
8.5	Pink
8.0	Light red
7.5	Red
7.0	Dark red
6.5	Orange-red
6.0	Orange
5.5	Yellow-orange
5.0	Yellow
4.5	Light green
4.0	Green
3.5	Light blue
3.0	Blue
2.5	Dark blue
2.0	Very dark blue

Kick Sample Testing

Kick sample testing was carried out on the riverbed to investigate the species of freshwater invertebrates present.

Identification keys were used to name any creatures found.



Results Summary



Visual inspection: The water was mostly clear, but some litter was found in and around the river. Some effluent in the water from a pipe, making the water cloudy in one location.



River Water Quality tests: indicated high levels of nitrates and acceptable levels of phosphates in the water.



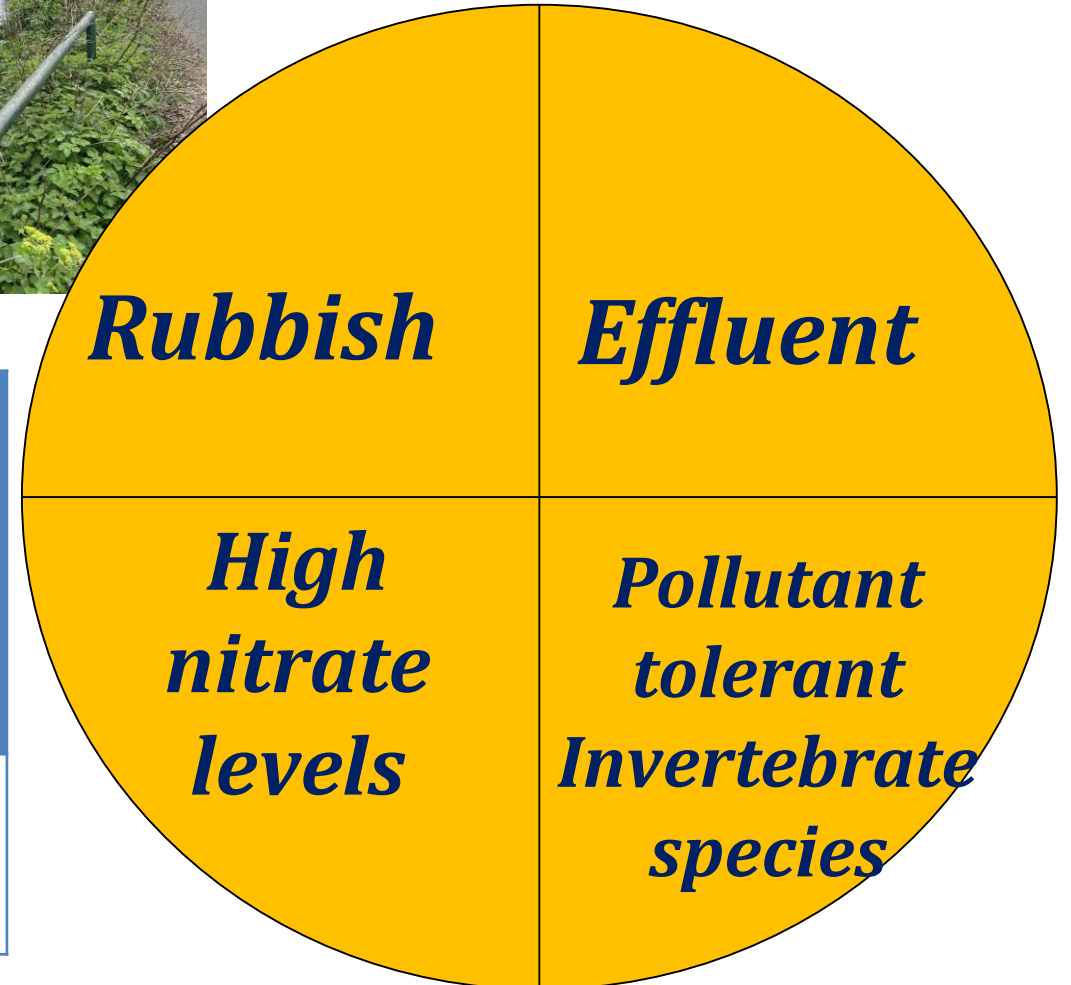
Kick sampling tests: indicated high amounts of pollutant tolerant species such as freshwater shrimp, leeches, water snails and water lice. Pollutant sensitive species such as green caddisfly and stoneflies were absent.



Results summary



Nitrate concentration ppm	Phosphate concentration ppm	pH	Water Temp °C
2 - 5	0.05 – 0.1	7	12



Key Issues to be Addressed



Our results indicate that our local river in Deansgrange may not be as healthy as we would like it to be.



Elevated nitrate levels may be due to fertilizers entering the water upstream.



The presence of rubbish in the water and the mystery effluent entering the water could also indicate poor river health.



Another concerning finding of our studies is the absence of pollution-sensitive invertebrates such as green caddisfly, stonefly and flattened mayfly. Their presence would indicate good water quality. The presence of pollution tolerant invertebrates such as leeches and snails further indicates poor water quality.

Discussion continued- Action for Water

We would like to study the river further and perhaps understand the reasons why the river may be polluted to address these issues.

We have communicated our findings on our school notice boards and on our social media.

Our Deansgrange river ecosystem indicates that the health of our river may not be good and could be described as having water quality in the moderate to poor categories. We recognize that our results provide snapshots of conditions at the river and more sustained analysis would provide a more reliable result.

We would like to thank Globe Ireland for their support, expertise and guidance with this citizen science project.



Conclusion & Future

References

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