

TOPIC 7

Fieldwork inquiry: How does a waterway change from source to sea?

7.1 Overview

7.1.1 Scenario and your task

Everybody lives in a catchment and its health is influenced by the activities in all areas within it. Your local water authority has received contradictory reports about the current state and health of your local catchment. As the reports are contradictory and the local water authority is not sure which is valid and which is not, they need to undertake a detailed study of the natural and built environments in the local catchment area. This will put them in an expert position to question and quash statements made by non-experts.

Your task

Your team has been commissioned by the local water authority to compile and present a report evaluating the current state of your local catchment. Your team must gather data to investigate how the catchment changes from the upper reaches to the lower. Your investigations will cover river characteristics such as depth, width and other channel characteristics, the fauna and flora in the area, and the land use in the catchment. In order to ensure that your report is accurate, your team can gather data about a local waterway and its immediate catchment by observing, collecting, interpreting and presenting your findings.



7.2 Process

7.2.1 Process

- You can complete this project individually or invite members of your class to form a group.
- Planning:** You will need to research the characteristics of your local catchment area. In order to complete sufficient research, you will need to visit a number of sites within the catchment, comparing different locations upstream and downstream of one creek or river. Access research topics in the Resources tab to provide a framework for your research:
 - What** sort of data and information will you need to collect at your fieldwork sites?
 - How** will you collect and record this information?
 - Where** would be the best locations to obtain data? You can determine this once you know which waterway(s) you are visiting.
 - How** will you record the information you are collecting? Consider using GPS, video recorders, cameras and mobile devices (laptop computer, tablet, mobile phone).
- Before going out into the field, examine topographic maps and aerial photos or satellite images of the relevant area to identify key landmarks (such as the location of your school, and the location of the waterway relative to the school). Locate the catchment boundary, the path of the waterway and the watercourse it contributes to. Construct a sketch map of the waterway — this map should show the catchment boundary/watershed, the river channel and the direction in which the water is flowing. Clearly note compass directions on the map. Gather spatial (mapped data) information about the region (using, for example, street directories, topographic maps, aerial photos and satellite images from sources such as Google Earth) and information about planning, population, land use, and flora and fauna.
- Discuss with your group what you might already know about your catchment and then divide the research tasks between you. Discuss the information you will be looking for and where you might find it. Choose land use categories that you will be able to recognise and a mapping symbol to be used for each. You can

view and comment on other group members' articles and rate the information they have entered.



7.2.2 Collecting and recording data

Depending on the catchment you visit, you could investigate some or all of the following:

- channel depth at various points across the stream
- channel width
- channel cross-section
- stream flow velocity (how fast the water is flowing)
- flora transects
- fauna surveys
- land-use surveys.

Other relevant observations may include:

- condition of the waterway banks
- general slope
- native and exotic vegetation
- cleared land
- evidence of erosion
- land-use zones
- potential pollution sources (including stormwater drains entering the waterway and sewage overflow points)
- building sites, industrial and residential areas
- pollution control devices
- erosion control.

Ensure that you take relevant measuring equipment into the field, and that several measurements are taken at each site. It is useful to divide tasks among groups and then share data when you are back at school. Use a copy of your map to record the information at each site.

7.2.3 Analysing your information and data

Once you have collected, collated and shared your data, you will need to decide what information to include in your report and the most appropriate way to show your findings. If using spreadsheet data, make total and percentage calculations. Some measurements are best presented in a table, others in graphs or on maps. If you have used a spreadsheet, you may

like to produce your graphs electronically. Use photographs as map annotations (either scanned and attached to your electronic map or attached to your hand-drawn map) to show features recorded at each site. You may also like to annotate each photograph to show the geographical features you observed. Describing and interpreting your data is important.

Access the report template and the presentation planning template from the Resources tab to help you complete this project. Use the report template to create your report. Use the presentation template to create an engaging presentation that showcases all of your important findings.



7.2.4 Communicating your findings

You will now produce a fieldwork report and presentation of your findings. Your report should include all of the research that you completed and all evidence to support your findings. Ensure that your report includes a title, an aim, a hypothesis (what you think you will find, which is written before you go into the field), your findings and a conclusion. You will also need to recommend some type of action that needs to be taken to improve river management at the creek or river you visited.

7.3 Review

7.3.1 Reflecting on your work

Think back over how well you worked with your group on the various tasks for this inquiry. Determine strengths and weaknesses and recommend changes you would make if you were to repeat the exercise. Identify one area where you were pleased with your performance, and an area where you would like to improve. Write two sentences outlining how you might be able to do this.

Print your Research Report and hand it in with your fieldwork report and presentation, and reflection notes.