

Teacher Resource Sheet: Comparing quadrats

Phase of learning

Senior Secondary (Years 11-12)

WA Curriculum

SS Biology – ATAR, SS Integrated Science – ATAR, SS Integrated Science – General, SS Marine and Maritime Studies – ATAR, SS Marine and Maritime Studies – General

Region

West Coast

Summary

This is a post excursion resource associated with the Excursion: Reef transect.

Intertidal investigation

Comparing quadrats

Answer sheet

Compare your quadrat sample closest to the high tide mark with that closest to the seaward end of your transect. Was the diversity of organisms in your two opposite quadrats significantly different? Why or why not?

There should be an evident change. As the depth of water increases, the diversity of species will also increase. Closer to the high tide mark, the diversity of species will be less, as this is potentially the harshest part of the reef platform. A limited number of species have the ability to survive here.

What did you notice about the invertebrate species found at in the upper intertidal zone in comparison to those in the lower intertidal zone of the platform? Give an example of a how a species from both zones has adapted to the different conditions.

Species inhabiting the upper intertidal zone must be able to survive periods out of the water. E.g. Barnacles, limpets, chitons and periwinkles are sessile and therefore unable to move to more hospitable areas so must be robust to survive. They have hard shells that prevent water loss and subsequent drying-out. The shell also prevents the animal from predation from sea birds such as sea gulls.

Organisms such as sea stars, sea urchins and octopus are able to move to more hospitable conditions, including to find food and avoid predation. For example, sea urchins have water filled tube 'feet' that can move the urchin slowly (potentially toward a food source) while the spines also protect the urchin from predators.

Where (if at all) along your transect did you first notice algal or seagrass species? Did the species change along your transect? Why/why not?

Green algae should have been evident first and may have been found at the lower end of the upper intertidal zone (in the area most likely to be permanently submerged). Depending on the depth of the platform, red and brown algae may have been found in the middle and lower intertidal zones. Large brown algae (e.g. kelp) may have only been evident in large rock pools due to the otherwise shallow nature of the platform. Small blade seagrass such as paddleweed may also be evident in the middle and lower intertidal zone, providing there was some sandy substrate.

Find a group who sampled the opposite side of the reef platform to your group. Was the composition of the areas you sampled similar or different? Is this change (if there was one) attributed to difference in position on the platform (i.e. on opposite sides), or more due to the depth along the platform?

This will be dependent on the reef platform you have chosen to study. You may notice a change if one side of the platform is more exposed than the other.

Download Files

[TRS comparing quadrats](#)

Related resources

[Hillarys School Excursion: Reef Transect](#)

[Student Worksheet: Reef transect - species record sheet](#)

[Teacher Guide: Reef Transect](#)

[Student Worksheet: Species composition](#)