

Food webs - Intertidal rocky shores

The **aim** of this activity is to observe and consider feeding relationships between species living in the intertidal zone of a coastal region, i.e. identify producers and first, second and third order consumers. Students will record and identify characteristic features of different plant and invertebrate groups.

ACARA curriculum links

Science understanding (ACSSU111)

Science inquiry skills (AC SIS124, AC SIS125, AC SIS126, AC SIS129, AC SIS130, AC SIS131, AC SIS132, AC SIS133)

Science as a human endeavour (AC SHE119 & AC SHE223)



Instructions

- This activity should be conducted on the intertidal zone at low tide. Check tides timetable and plan this activity accordingly.
- To increase the amount of data collection, split the group into smaller groups.
- Features of the plant and invertebrate species found should be described.
- Waterproof invertebrate and plant ID sheets can help in the field to identify specimens found.

Equipment

- Sturdy reef walking shoes
- Hat, sunscreen and water bottle
- Waterproof paper to make notes and pencil
- Digital photo camera (if available)
- Identification guide or water proof ID sheets for invertebrates in the intertidal zone
- Coralwatch Coral Health Chart and datasheet (optional)

Resources

- Field guides such as plant and Invertebrate identification books
- Waterproof sheets of common invertebrates and plants or the the cheat sheets in this curriculum laminated

Recommended classroom activities

- Worksheet C2 - Observable features of organisms and dichotomous keys.

COMMON FLORA AND FAUNA – INTERTIDAL COASTAL REGIONS



Caulerpa taxifolia (Killer algae)

ALGAE grows on mud and sand flats. Requires large amounts of sunlight to produce its food.



Halophila ovalis (Dugong grass)

SEAGRASS grows in shallow water near the low tide mark. Needs sunlight to produce food.



Avicennia marina (Grey mangrove)

MANGROVE PLANTS are trees that grow on mud and sand flats. Roots poke through the sand into the air.



Pink sandy sponge

SPONGES may grow in the open or underneath rocks. They are filter feeders, commonly found in dirty waters.



Stichodactyla haddoni (Haddon's anemone)

ANEMONES bury their foot into muddy sand and use their sticky oral disc to catch food. Anemones also have symbiotic algae that live within their bodies that use sunlight to generate food.



Phyllodoce novaehollandia (Green paddle worm)

WORMS can live in the sand or mud and move about the intertidal zone at low tide. They can feed on small shrimp and crabs, other worms, and also scavenge on dead animals that are in the vicinity.



Tapas dorsatus (Tapestry venus clam)

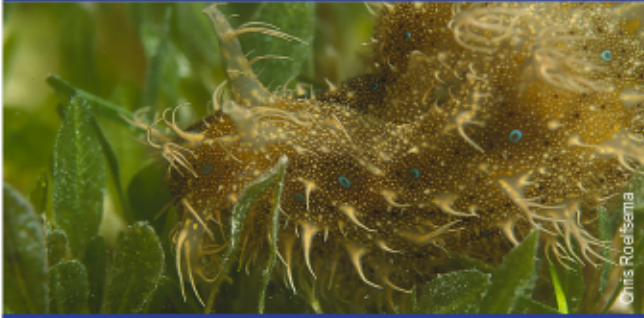
BIVALVES are shells with two parts protecting the soft body of the animal inside. Bivalves filter food (phytoplankton & zooplankton) from the water. Many were important foods for local indigenous people for thousands of years.



Pyrazus ebeninus (Hercules club mud whelk)

GASTROPODS are sea snails and slugs. They live on rocks and in seagrass beds. They often eat seagrasses and algae in the marine environment.

COMMON FLORA AND FAUNA – INTERTIDAL COASTAL REGIONS



Aplysia sowerbyi (Sowerby's sea hare)

SEA SLUGS live in and around seagrasses and rocky shores. They feed on sponges, green and red algae. Some can be up to 15 cm long.



Hymenocera elegansi (Harlequin shrimp)

SHRIMP live in seagrass areas and around rocky areas. They feed on algae. Some shrimp make a loud clicking noise. They are called pistol shrimps.



Superfamily *Paguroidea* (Hermit crab)

CRABS eat many things including shrimp, gastropods, molluscs and even dead fish. Hermit crabs live inside shells made by other animals.



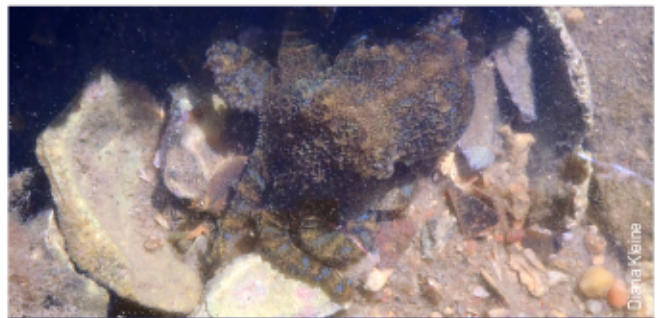
Class *Holothuroidea* (Sea cucumber)

SEA CUCUMBERS burry in sand and inhabit rocky shores. They feed on detritus and algae. When disturbed some species can eject masses of sticky white tendrils.



Acropora sp. (Hard coral)

CORALS can be found in rocky shores. They can have a stony skeleton or may be soft. Corals have symbiotic algae that live within their bodies that use sunlight to generate food. Corals also filter food from the water.



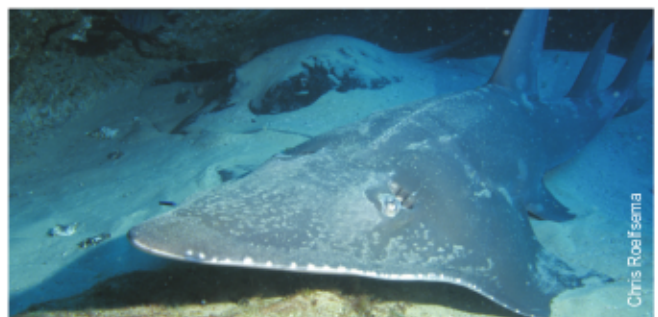
Haplochlæna fasciata (Blue-lined octopus)

OCTOPUS feed on crabs, crustaceans and small fish. No octopus should be touched as it may be a Blue-lined octopus. These have a highly venomous bite which can cause paralysis and death.



Plotosus lineatus (Striped eel catfish)

FISH move through the intertidal zone at high tide. They eat shrimp, crabs, octopus, worms and many other things.



Rhynchobatus australiae (Guitarfish)

SHARKS and **RAYS** move through the intertidal zone at high tide. They eat fish, bivalves, crabs and shrimp. You may also see Shovelnose rays in the shallow water.

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Instructions

Field activity

1. Find a buddy or work in small groups.
2. Find an area that your teacher determines is safe to walk through.
3. Record any animals and plants observed at this location in the table.
4. Refer to the field guide to help with species identification.

Questions

1. Use the information provided in the field guide to determine what animals eat the plants, and identify any other animals you can observe in the area. Record this in the table (worksheet 3).
2. Predict which species are producers, first order consumers, second order consumers and third order consumers based on the information you have learned.

Back in the classroom activity

1. Construct a food web using all the plants and animals recorded in the field. Try to draw representative pictures of each animal or plant in the food web.
2. What types of corals did you observe in your field study? How do they fit into the food web of the intertidal zone?
3. Suggest what may happen if one of the first order consumers is removed from the system?



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Food webs field activity results table

Group member names:

Location:

Date:

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